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## TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No.  
GB010043

Inventor Application Of: Frank W. Rohlfing

2

Serial No.  
10/099,680Filing Date  
3/15/2002Examiner  
L.M. SchillingerGroup Art Unit  
2813

Invention: ELECTRONIC DEVICES COMPRISING THIN-FILM TRANSISTORS AND THEIR MANUFACTURE

TO THE COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on April 28, 2003

The fee for filing this Appeal Brief is: \$320.00

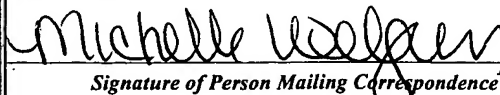
- ☐ A check in the amount of the fee is enclosed.
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Dated: July 28, 2003

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App. No. 10/099,680  
Brief on Appeal

Page 1 of 15

**IN THE UNITED STATES  
PATENT AND TRADEMARK OFFICE**

Appl. No.: 10/099,680

Applicant(s): FRANK W. ROHLFING

Filed: March 15, 2002

Title: ELECTRONIC DEVICES COMPRISING

THIN-FILM TRANSISTORS AND THEIR

MANUFACTURE

TC/A.U.: 2800/2813

Examiner: L.M. Schillinger

Atty. Docket: GB 010043

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On: 028 July 2003

By: *Michelle Wegman*  
Michelle Wegman

**BRIEF ON APPEAL BEFORE THE BOARD OF PATENT APPEALS AND  
INTERFERENCES**

Honorable Assistant Commissioner of Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In connection with the Notice of Appeal filed on April 29, 2003, Applicants provide the following Brief on Appeal in triplicate in the above captioned application.

**1. Real Party in Interest**

The real party in interest as assignee of the entire right and title to the invention described in the present application is U.S. Philips Corporation having an address at 1251

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Adjustment date: 08/05/2003 EFLORES  
08/04/2003 EFLORES 00000092 500238 10099680  
02 FC:1801 750.00 CR

Avenue of the Americas, New York, NY 10020.

## **2. Related Appeals and Interferences**

There are no known related appeals or interferences at this time.

## **3. Status of the Claims**

Claims 1-11 are pending and have been twice rejected. Rejected claims 1-11 are duplicated in Appendix I.

## **4. Status of Amendments**

A Final Office Action on the merits was mailed on February 4, 2003. In response thereto, an Amendment and/or Response under 37 C.F.R. § 113 and/or 37 C.F.R. § 116 was filed on March 26, 2003. An Advisory Action was mailed April 8, 2003.

## **5. Summary**

Figs. 1A-1C illustrate processes suitable for fabrication of a range of self-aligned (SA) thin film transistor (TFT) architectures with field relief, where a masking layer for the implantation of the field-relief regions is formed prior to the definition of the gate.

The structure shown in Figure 1A may be formed as follows. Initially, a semiconductor film 2 is deposited over the substrate 4. For example, amorphous silicon may be deposited and then crystallised, typically by irradiation with an energy beam such as a laser. This layer may have a thickness of around 40 nm. A gate insulator layer 6 (for example of silicon dioxide) is subsequently deposited, followed by an insulating layer 8, which constitutes a first masking layer. This first masking layer 8 has a plurality of holes therethrough. A gate electrode layer 10 formed typically of an aluminium-titanium alloy is then deposited and patterned (forming a second masking layer), and a spacer 12, 14 made of silicon oxide or nitride for example is formed along each edge thereof.

As illustrated in Figure 1B, the insulating layer 8 is then etched using the combination of the patterned gate electrode layer 10 and the spacers 12, 14 as a mask.

The spacers 12, 14 are then removed and implantation of the semiconductor film 2 is carried out, with the exposed portions of the perforated insulating layer 8 constituting a first, partial mask, and the gate layer 10 acting as a second mask. This results in the definition of a source 16 and drain 18, field relief regions 20, 22, and a conduction channel 24 in the semiconductor film 2.

Figs. 2A-2B illustrate an approach to produce SA TFTs with field-relief regions, in which the holes are introduced into the insulating layer 8 after gate definition. As shown in Figure 2B, the holes are then confined to the exposed portions 26 and 28 of layer 8. Alternatively to the process flow shown in Figs 2A-2B, the holes may be introduced into insulating layer 8 immediately after the definition of gate layer 10, and followed by the steps of spacer 12, 14 fabrication, etching of the insulating layer 8, spacer removal, and ion implantation.

The processes described above in relation to Figs. 1A-2B result in fully self-aligned, lightly-doped-drain (FSA LDD) devices. Layers 6 and 8 together form the gate dielectric layers.

According to the embodiments described in the application as filed, the insulating layer 8 is a part of the mesa of a field effect transistor, such as a thin film transistor (TFT). Advantageously, the use of the insulating layer 8 having a plurality of holes enables the formation of a source 16 and a drain 18, and field relief regions 20, 22 in a single implantation step. As described in the application as filed, the formation of the TFT in a single implantation step is beneficial as it simplifies manufacture and improves throughput.

Finally, it is noted that the embodiments described in the filed application describe the benefits of and also require the formation of the source 16, drain 18, and field relief regions 20, 22 in a single implantation. Thus, a plurality of ion implantations to meet this end are neither embodied in, nor sanctioned by applicant's disclosure.

## 6. Issues on Appeal

I. The issue on appeal is whether claims 1-11 are properly rejected under 35 U.S.C. 102(e) as being unpatentable over *Bae* (U.S. Patent No. 5,256,585). A related issue is the interpretation of the term ‘performing an implantation’ in claim 1 in view of the recitation of the word ‘comprising’ in the preamble of this claim.

## 7. Grouping of Claims

Group I: Claims 1-3, and claims 6-11 stand or fall together.

Group II: Claim 4 stands or falls alone.

Group III: Claim 5 stands or falls alone.

## 8. Argument

I. The issue on appeal is the propriety of the rejection of claims 1-11 under 35 U.S.C. § 102(e) in view of *Bae*.

A proper rejection for anticipation “...requires, as the first step in the inquiry, that *all the elements* of the claimed invention be described in a *single reference*.” *In re Spada* 15 USPQ 2d 1655, 1657 (1990) (emphasis added). A necessary corollary to this test of anticipation is that the “absence of any claimed element negates anticipation.” *Kloster-Speedsteel AB v. Crucible, Inc.* 230 USPQ 81, 84 (1986).

Applicants respectfully submit that independent claim 1 and the claims that depend directly or indirectly therefrom are patentable over the cited reference because *Bae* does not teach or suggest at least the patentable feature of claim 1 of:

*“...depositing a first masking layer over the semiconductor film and removing portions thereof to form a plurality of holes . . . [and]... performing an implantation in the semiconductor film using at least the first masking layer as an implantation mask to define source and drain regions, an undoped conduction channel between the source and drain*

*regions, and a field-relief region having a lower doping concentration than the drain region between the conduction channel and the drain region."*

The reference to *Bae* is drawn to the fabrication of a semiconductor device, but does not include the claimed process of depositing of a first mask, removing portions thereof to form a plurality of holes in the first masking layer, and using this masking layer in the **only** implantation needed to form the source region 16, the drain region 18, the field-relief regions 20, 22, with a channel between the field relief regions. In particular, *Bae* does not teach that the removal of the photoresist 100 forms a plurality of holes in the gate metal layer 54a or the buffering layer 55a, which are used as masks in a subsequent step. (Please refer to column 4, lines 11-44 of *Bae* for support for this assertion.)

The Office asserts that *Bae* meets the feature of claim 1 under discussion with the etching of the photoresist 100. To wit, in the Advisory Action, the Office states "...on both sides of the island, the photoresist (as depicted in Fig. 3B (100)) has a hole-this equates to two holes." (Please refer to page 2 to of the Advisory Action dated April 8, 2003). Moreover, the final Office Action of February 4, 2003 asserts that *Bae* teaches "depositing a first mask over the semiconductor film and forming holes therethrough (Fig. 3B (100 and 54a). The final Office Action also asserts that a reasonable interpretation of the feature of claim 1 of removing portions of the first masking to form holes is that "...areas devoid of mask material [are] holes..." (Please refer to page 5 of the final Office Action).

Applicants respectfully, but strongly, disagree that the disclosure of *Bae* includes the teaching of the forming of a plurality of holes in the implant mask. First, it is noted that the photoresist 100 of *Bae* is not an implant mask. Rather this photoresist 100 is used in the fabrication sequence of the gate metal layer 54a and the buffering oxide layer 55a. In fact, this photoresist 100 is removed **before the ion implantation** step that forms the low-concentration source and drain regions. As such, assuming *arguendo* that the photoresist etching resulted in holes as the Office asserts, the photoresist is not an implant mask as the

Office asserts. (Kindly refer to column 4, lines 7-44 and Figs. 3A-3C of *Bae* for support for the above assertions.)

Moreover, claim 1 clearly states that a first masking layer is deposited, and portions thereof are removed to form a plurality of holes. Thus, the first masking layer 8 has portions removed thereby forming a plurality of holes. Clearly, from a review of the filed application, particularly in conjunction with Figs. 1C and 2B, the plurality of holes are made by removing portions of the first masking layer 8. This results in a first masking layer 8 with holes therein. Applicants assert the Office's interpretation of the term 'plurality of holes' in the rejected claims as a solid first masking layer with the layer **completely removed** on either side being the holes is not reasonable.

In furtherance to this point, applicants refer to a dictionary definition of the word 'hole' to provide further support for their position. Webster's New World Dictionary © 1957, defines the noun 'hole' as "...1. a hollow or hollowed-out place; cavity, specifically a) an excavation; pit: as he dug a *hole* in the ground." Clearly, the noun hole connotes the removal of a portion of material from a mass of the material, with the remaining unexcavated portion intact. This is consistent with the meaning of 'holes' in present application. To wit, holes are formed in the first masking layer 8 by removing portions of the masking layer; however, the portions of the first masking layer that are not removed are intact. But the photoresist 100 of *Bae* surrounding the mesa with the mask does not exist after etching; only the photoresist 100 without any holes therein. Similarly, the mask gate metal layer 54a and the buffering layer 55a are solid layers of the mesa of the gate/gate-oxide structure, and do not have holes.

In addition to the reasons set forth above, it is respectfully submitted that the Office's interpretation of the disclosure of *Bae* is not reasonable, and that one of ordinary skill in the art would interpret a mesa including an implant mask, as an implant mask having a plurality of holes merely because the material of the mask of *Bae* has been removed on either side of the mesa-containing mask. To this end, it is clear from a review of the filed application that the applicant has determined that by **creating holes in a mask**, the doping levels can be

controlled thereby eliminating the need for a second implant sequence. The holes are needed **in the mask**, and not on either side of the mask to meet the desired implantation of the present application. *Bae* has no holes **in the mask formed on a mesa**, but rather **has a solid mask that has unprotected regions on either sides of the mesa**. These unprotected regions are not part of the mask, as is the plurality of holes part of the mask of the claims in question; and the masks of *Bae* cannot be used in providing the desired masking effect of the present application.

As noted previously, the reference to *Bae* requires two separate implant steps to form a lightly doped drain (LDD) transistor structure. The first implant step, which is used to form lightly doped source and drain regions, 56, 57, is followed by the formation of a polysilicon spacer (please refer to Figs. 3D and 3E of *Bae*) and a second implantation that forms the highly doped drain and source regions, 59, 60. The second implantation required by *Bae* uses the gate structure, which includes the etched refractory metal layer 54a, the portion 58a formed on the side walls of the refractory metal layer, and the etched polysilicon layer 53a, as the implant mask. (Please refer to column 4, lines 45-column 5, line 21 of *Bae* for support for this assertion.)

Contrastingly, claim 1 features performing **an** implantation step, and not any subsequent implantation. The Advisory Action and the final Office Action assert that because the transitional word 'comprising' has been incorporated into claim 1, the claim is open-ended, and thus leaves open the inclusion of additional steps not included in the claim. The final Office Action states that "A reference will anticipate such claim language as long as it includes the recited steps, however additional steps may be included. Therefore, nothing in the claim language limits the number of possible implantation steps as Applicant argues."

While it is generally the case that the use of an indefinite article (e.g., 'a' or 'an') in a claim having the transitional term comprising is interpreted to mean 'one or more' of this element, an exception exists and applies in the present application. In particular, an exception exists when "The written description supplied additional context for understanding



whether the claim language limits the patent scope to a single unitary [element] or extends to encompass a device with multiple [elements].” *KCJ Corp. v. Kinetic Concepts Inc.* 55 USPQ 2d 1835, 1839, citing *AbTox, Inc. v. American Cyanamid Co.* 28 USPQ 2d 1545. The CAFC further states in *KCJ Corp.* “Thus, as the rule dictates, when the claim language or context calls for further inquiry, this court consults the written description for a clear intent to limit the invention to a singular embodiment.” *Id.*, at 1839.

The written description of the filed application clearly discloses that *one and only one* implantation is carried out. In fact, a clear benefit of the processes disclosed in the filed application is the fabrication of the source, drain, field-relief regions, and the channel 24 in a **single** implantation, and not the multiple implants that are required by and plague known techniques, and as are required by *Bae*. (Kindly refer to page 2, lines 28-29 of the filed application

for support for the above assertions.)

As such, as to the feature of claim 1 of ‘performing an implantation’ means performing one, and not more than one implantation, as the use of more than one implantation is disadvantageous. As described above, the reference to *Bae* discloses more than one implant step.

Accordingly, for at least the reasons set forth above, the requisite suggestion or motivation to combine the applied references is lacking. For at least this reason, the rejections of claim 1 and the claims that depend therefrom under 35 U.S.C. § 102(e) are improper and should be withdrawn.

### ***Conclusion***

In view of the foregoing, applicant(s) respectfully request(s): the withdrawal of all objections and rejections of record; the allowance of all the pending claims; and the holding of the application in condition for allowance. If any points remain in issue that may best be

resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and further replies to charge payment or credit any overpayment to Deposit Account Number 50-0238 for any additional fees under 37 C.F.R. §1.16 or under 37 C.F.R. §1.17.

In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact William S. Francos, Esq. (Reg. No. 38,456) at (610) 375-3513 to discuss these matters.

Respectfully submitted on behalf of:

Phillips Electronics North America Corp.

A handwritten signature in black ink, appearing to read "William S. Francos", is written over a horizontal line.

by: William S. Francos (Reg. No. 38,456)

date: July 28, 2003

Volentine Francos, PLLC

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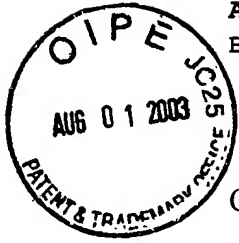
Wyomissing, PA 19610

(610) 375-3513

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Brief on Appeal

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**APPENDIX I**  
**Claims on Appeal**



Claims on Appeal:

1. A method of manufacturing an electronic device including a thin film transistor, comprising the steps of:
  - (a) forming a semiconductor film over an insulating substrate;
  - (b) depositing a first masking layer over the semiconductor film and removing portions thereof to form a plurality of holes therethrough which extend substantially perpendicularly from the upper to the lower surface thereof;
  - (c) patterning the first masking layer in a first pattern;
  - (d) depositing a second masking layer over the first masking layer;
  - (e) patterning the second masking layer to define a second pattern that lies within the area of the first pattern; and
  - (f) performing an implantation in the semiconductor film using at least the first masking layer as an implantation mask to define source and drain regions, an undoped conduction channel between the source and drain regions, and a field-relief region having a lower doping concentration than the drain region between the conduction channel and the drain region.
2. A method of Claim 1 wherein step (b) comprises providing an array of spaced raised features over the semiconductor film depositing the first masking layer thereover, and removing the raised features together with the portions of the first masking layer material overlying the raised features.
3. A method of Claim 1 wherein step (b) comprises depositing a first masking layer over the semiconductor film defining an etchant mask over the first masking layer, and etching a plurality of holes through the material of the first masking layer.

4. A method of Claim 3 wherein step (c) is carried out before the step of etching holes in the first masking layer.

5. A method of Claim 3 wherein the step of etching holes in the first masking layer is carried out after step (e), such that the holes are formed through the exposed areas of the first masking layer.

6. A method of Claim 1 wherein step (d) is carried out before step (c), and the method includes, after step (d) and before step (c), patterning the second masking layer to form a mask in the first pattern for the patterning of the first masking layer in step (c).

7. A method of Claim 6 wherein step (h) comprises defining the second pattern in the second masking layer and then forming sidewall spacers adjacent the second masking layer to define the first pattern.

8. A method of Claim 1 wherein step (e) comprises defining the second pattern in a third masking layer over the second masking layer oxidising the exposed portions of the second masking layer, and then removing the oxidised portions of the second masking layer thereby defining the second pattern in the second masking layer.

9. A method of Claim 1 wherein the first masking layer forms a gate insulating layer and the second masking layer forms a gate electrode layer.

10. A method of Claim 1 wherein the first masking layer forms a gate electrode layer, and the method includes a step of depositing a gate insulator layer after step (a) and before step (b).

11. An electronic device including a thin film transistor fabricated according to a method of Claim 1.

**APPENDIX II**  
**Applied References**

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**FULL TEXT OF CASES (USPQ2D)**

All Other Cases

AbTox Inc. v. Exitron Corp. (CA FC) 43 USPQ2d 1545 (8/1/1997)

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AbTox Inc. v. Exitron Corp. (CA FC) 43 USPQ2d 1545

**AbTox Inc. v. Exitron Corp.****U.S. Court of Appeals Federal Circuit**  
**43 USPQ2d 1545****Decided August 1, 1997****Nos. 96-1159, -1164****Headnotes****PATENTS****1. Patent construction -- Claims -- Broad or narrow (§ 125.1303)**

Scope of patents for plasma sterilizers and sterilization methods is limited to device employing single unitary gas-confining chamber and does not extend to encompass device with multiple chambers, since claim language, which refers to single "gas-confining chamber" having separate sterilization zone within "said chamber," contains no suggestion of separate gas-confining chambers, and since specifications disclose separate plasma- generating and sterilization zones within same chamber, rather than distinct gas-confining chambers.

**2. Patent construction -- Prosecution history estoppel (§ 125.09)**

Federal district court erred in determining that statements in prosecution history limit scope of patents for plasma sterilizers to device employing single unitary gas-confining chamber, since statements relied upon by court were made during prosecution of parent application claiming separate embodiments of sterilizer employing radio frequency and microwave energy sources respectively, since those statements apply only to RF technology, and since, read in context, prosecution history supplies no express single-chamber limitation on microwave plasma generators presently at issue; court's error was harmless, however, since claim language, interpreted in light of specification, limits microwave devices to single gas-confining chamber.



### **3. Infringement -- Defenses -- Regulatory compliance (§ 120.1113)**

35 USC 271(e)(1) applies to medical devices categorized as "Class II" devices by Food and Drug Administration, such as plasma sterilizer at issue in present case, even though Class II devices are not eligible for patent term extensions under 35 USC 156, since under broad interpretation of Section 271(e)(1) presently in force, all classes of medical devices fall within plain meaning of that section, and since "statutory symmetry," in which medical device eligible for infringement shield of Section 271(e) is also eligible for patent term extension, is preferable, but not required, for application of Section 271(e)(1).

### **4. Infringement -- Defenses -- Regulatory compliance (§ 120.1113)**

35 USC 271(e)(1) requires only that otherwise infringing act be performed "solely for uses reasonably related to" Food and Drug Administration approval in order to qualify for shield against infringement, and statute therefore does not look to underlying purposes or attendant consequences of activity so long as use is reasonably related to FDA approval; statute thus allows accused infringer in present case to use its test data for more than FDA approval, since as long as activity is reasonably related to obtaining such approval, accused infringer's intent or alternative uses are irrelevant to its qualification to invoke Section 271(e)(1) shield.

#### **Particular patents -- Chemical -- Plasma sterilizers**

4,931,261, Jacob, apparatus for dry sterilization of medical devices and materials, judgment of non-infringement of claims 3, 6 and 8 affirmed.

4,321,232, Bithell, package and sterilizing process for same, judgment of non-infringement affirmed.

#### **Particular patents -- General and mechanical -- Plasma sterilizers**

4,917,586, Jacob, process for dry sterilization of medical devices and materials, judgment of non-infringement of claims 1 and 6 affirmed.

### **Case History and Disposition:**

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Appeal from the U.S. District Court for the District of Massachusetts, Lasker, J.; 35 USPQ2d 1508.

Action by AbTox Inc. against Exitron Corp., Adir Jacob, and MDT Corp. for declaratory judgment of patent non-infringement, and for patent infringement by MDT Corp., in which defendant MDT Corp. counterclaims for patent infringement. From decisions on cross-motions for summary judgment holding that plaintiff does not infringe defendants' patents, and that MDT Corp.'s use of invention in pursuit of regulatory approval did not infringe plaintiff's patent ( 35 USPQ2d 1508 ), parties cross-appeal. Affirmed.

#### **Attorneys:**

William L. Anthony Jr., Robert DeBerardine, and Karen Y. Spencer, of Brobek, Phleger & Harrison, Palo Alto, Calif., for plaintiff/cross-appellant.

Donald R. Dunner, Allen M. Sokal, and Howard A. Kwon, of Finnegan, Henderson, Farabow, Garrett & Dunner, Washington, D.C.; David V. Trask and James R. Duzan, of Trask, Britt & Ross, Salt Lake City, Utah; John A. Lahive Jr., of Lahive & Cockfield, Boston, Mass., for defendants-appellants.

**Judge:**

Before Mayer, Michel, and Rader, circuit judges.

**Opinion Text**

**Opinion By:**

Rader, J.

This case is on appeal from two decisions of the United States District Court for the District of Massachusetts. On cross-motions for summary judgment, the district court first held that AbTox, Inc. (AbTox) does not infringe MDT Corporation's (MDT's) patents. In a separate opinion, the district court held that MDT's use of the invention in pursuit of regulatory approval did not constitute infringement of AbTox's patent. Although the district court misapprehended the prosecution history in construing the claims of MDT's patents, upon review of the claim language, this court affirms.

**I.**

In 1993, MDT filed suit for patent infringement against AbTox in the United States District Court for the Central District of California. MDT alleged infringement of two patents issued to Adir Jacob -- U.S. Patent Nos. 4,931,261 (the '261 patent), titled an "Apparatus for Dry Sterilization of Medical Devices and Materials," and 4,917,586 (the '586 patent), titled a "Process for Dry Sterilization of Medical Devices and Materials." After dismissal of the California suit without prejudice, and a subsequent filing in the United States District Court for the Northern District of Illinois, the United States District Court for the District of Massachusetts took jurisdiction and consolidated various actions filed elsewhere by the parties. Specifically, MDT refiled its infringement action, and AbTox sought a declaratory judgment of non-infringement of the Jacob patents and further claimed that MDT infringed its U.S. Patent No. 4,321,232 (the '232 patent), a "Package and Sterilizing Process for Same."

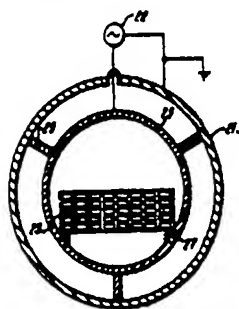
These patents disclose devices which sterilize medical instruments in a partially ionized gas, known as plasma. To make plasma, the devices excite a gas with high radio or microwave frequencies. The plasma then emits light, charged particles (ions and electrons), and neutral active components (atoms, excited molecules, and free radicals). These particles and components bombard medical instruments brought into the plasma environment, thereby sterilizing the instruments.

High-energy charged particles, however, can damage delicate medical instruments. Therefore, to avoid these harmful side effects, a sterilizing apparatus must block the charged particles and sterilize only with neutral active components. This objective calls for a Faraday shield, a metal barrier that blocks charged particles. By placing the medical instruments within or behind a Faraday shield within the plasma environment, the neutral active particles alone pass through to accomplish the sterilization. The Jacob patents disclose methods and apparatus to accomplish these objectives.

The Jacob patents spring from a common parent application, application Serial No. 07/19,134 (the '134 application). The application matured into U.S. Patent No. 4,801,427 (the '427 patent). The '261 patent issued on a division of the '134 application and the '586 patent is a continuation of a continuation-in-part of the '134 application. All three patents have nearly identical disclosures.

The written description common to the patents discloses two basic embodiments, one using radio

frequencies (RF) and another using microwave frequencies. Figure 3 of the patents (the '427 patent, the '261 patent, and the '586 patent have identical figures) illustrates the plasma sterilizer with the RF source:

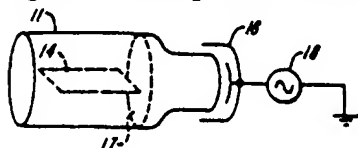


In this embodiment, the RF source 22 projects an electrical field into chamber 21 which contains the gas. This action creates plasma in chamber 21. Within chamber 21 is an inner Faraday shield container 23. This Faraday shield container has a basket 25 to hold the medical instrument for sterilization. Thus, the RF source creates plasma within

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chamber 21, but only the neutral active particles reach past the Faraday shield 23 to sterilize the instruments in the basket.

Figure 2 of the patents shows the microwave embodiment:



In this embodiment, the microwave source 18 is located at one end of chamber 11. Component 17 is the metallic Faraday shield through which the neutral active particles travel to sterilize the instrument 14. MDT alleges that AbTox infringes claims 3, 6, and 8 1 of the '261 patent and claims 1 and 6 of the '586 patent. Claim 3 of the '261 patent defines an

[a]pparatus for sterilization of medical devices and materials in a gas plasma comprising,  
 (a) a metallic gas-confining chamber having a non-metallic portion;  
 (b) a microwave energy source including a microwave cavity positioned to couple microwave energy into said chamber through said non-metallic portion, and  
 (c) means for holding . . . medical devices and materials to be sterilized within said chamber volume and away from said microwave cavity, and including a perforated electrical shielding member positioned within said chamber and in close proximity to said microwave energy source to provide a portion of the internal volume of said chamber shielded from and away from said microwave energy providing a field-free zone containing said devices and materials.

The '586 patent describes the method of MDT's plasma sterilizer. Claim 6 requires:

A method in accordance with claim 1 [of the '586 Patent, which requires a "gas-tight confining chamber",] where in said chamber there is positioned a perforated metallic shield, said shield being substantially equal to the internal cross section of said chamber and located in close proximity to said microwave energy source, thereby providing a substantially field-free zone immediately beyond it and away from said microwave energy source, said field-free zone containing said devices and materials. The district court determined that the central summary judgment question for infringement was the relationship between the plasma generation zone and the sterilization zone behind the Faraday shield. MDT made two arguments. First, on the claim interpretation question, MDT contended that the Jacob patent claims cover a device featuring a plasma chamber separate from the sterilization zone. In the event the district court interpreted the claims adverse to its "separate chambers" position, MDT also

contended that the AbTox device features a single gas-confining chamber.

AbTox, on the other hand, argued that the Jacob patent claims encompass no more than a device featuring a single chamber which both confines the plasma and holds the Faraday shield container. AbTox also presented evidence that its accused device features a plasma chamber separate from the Faraday shield container. In granting AbTox summary judgment, the district court found that the Jacob patents do not encompass devices or methods "in which the plasma is generated in an enclosure that is in any way separate from the enclosure in which the sterilization takes place." Based on its finding that the AbTox device employs two chambers, the district court granted AbTox's summary judgment motion. MDT appealed.

## II.

This court reviews the grant of summary judgment as a question of law. See *KeyStone Retaining Wall Sys., Inc. v. Westrock, Inc.*, 997 F.2d 1444, 1449, 27 USPQ2d 1297, 1301 (Fed. Cir. 1993). A trial court may award summary judgment only when the parties present no genuine issue of material fact and the moving party deserves judgment as a matter of law. Fed. R. Civ. P. 56(c); see *A.B. Chance Co. v. RTE Corp.*, 854 F.2d 1307, 1310-11, 7 USPQ2d 1881, 1883-84 (Fed. Cir. 1988). In assessing the motion, the court must resolve all inferences in favor of the non-movant. See *Opryland USA Inc. v. Great Am. Music Show, Inc.*, 970 F.2d 847, 850, 23 USPQ2d 1471, 1472 (Fed. Cir. 1992) (citing *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986)).

The test for patent infringement requires both proper interpretation of the claim scope and proper comparison of the claims with the accused device. See *Becton Dickinson & Co. v. C.R. Bard Inc.*, 922 F.2d 792, 796, 17 USPQ2d 1097, 1099 (Fed. Cir. 1990). Be

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cause MDT and AbTox dispute the meaning of terms in the claims of the patent, this court reviews the district court's claim interpretation under the requirements of *Markman v. Westview Instruments, Inc.*, 116 S. Ct. 1384, 1395, 38 USPQ2d 1461, 1470 (1996).

Claim interpretation is the process of giving proper meaning to the claim language. Claim language, after all, defines claim scope. See *York Prods., Inc. v. Central Tractor Farm & Family Ctr.*, 99 F.3d 1568, 1572, 40 USPQ2d 1619, 1622 (Fed. Cir. 1996); *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 619-20, 34 USPQ2d 1816, 1819 (Fed. Cir. 1995) ("[T]he language of the claim defines the scope of the protected invention."). Therefore, the language of the claim frames and ultimately resolves all issues of claim interpretation. In determining the meaning of disputed claim terms, however, a construing court considers the descriptions in the rest of the patent specification, the prosecution history, and relevant extrinsic evidence. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979, 34 USPQ2d 1321, 1329 (Fed. Cir. 1995) (en banc), *aff'd*, 116 S. Ct. 1384, 38 USPQ2d 1461 (1996); *Whittaker Corp. v. UNR Indus.*, 911 F.2d 709, 711, 15 USPQ2d 1742, 1744 (Fed. Cir. 1990). These additional sources provide a context to illuminate the meaning of claim terms. See *York Prods.*, 99 F.3d at 1572. Nonetheless, throughout the interpretation process, the focus remains on the meaning of claim language.

Accordingly, this court begins with the claim language. The language of claim 3 of the '261 patent defines only the microwave embodiment of the invention as illustrated in figure 2. The claim specifies "a metallic gas-confining chamber." Of particular relevance for the claim dispute before this court, the article "a" suggests a single chamber. However, patent claim parlance also recognizes that an article can carry the meaning of "one or more," for example in a claim using the transitional phrase "comprising." See *North Am. Vaccine, Inc. v. American Cyanamid Co.*, 7 F.3d 1571, 1575-76, 28 USPQ2d 1333, 1336 (Fed. Cir. 1993) (acknowledging that patent parlance construes "a" to connote "one or more," yet holding that "there is no indication in the patent specification that the inventors here intended it to have other than its normal singular meaning"); see Robert C. Faber, *Landis on Mechanics of Patent Claim Drafting* 531 (3d ed. 1990).

[1] The terms used in claim 3 of the '261 patent to demarcate the regions of the apparatus -- "gas-confining chamber," "microwave cavity," and "field free zone" -- are defined in relation to each other. For example, microwave energy from the "microwave cavity" is brought "into said chamber." Therefore, this language separates the "microwave cavity" from the "gas-confining chamber." The claim continues to describe "a portion of the internal volume of said chamber . . . providing a field free [sterilization] zone." This language places the sterilization zone within the "gas-confining chamber." Repeatedly the claim refers to "said chamber" as it describes various portions of the apparatus. This term itself, "said chamber," reinforces the singular nature of the chamber. The claim does not place the sterilization zone vaguely within "a chamber," but within "said chamber." This language clarifies that only one chamber is in question. Likewise, claim 1 of the '586 patent discloses a "field-free zone away from said [microwave] cavity." This language suggests some separation between the sterilization zone and the microwave cavity. Even this language, however, contains no suggestion of separate gas-confining chambers.

While in some instances claim language alone may disclose unambiguously the limits of claim coverage, *E.I. Du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433, 7 USPQ2d 1129, 1131 (Fed. Cir. 1988), in this instance, this court seeks the meaning of the claim terms by examining their fuller context. The written description supplies additional context for understanding whether the claim language limits the patent scope to a single unitary chamber or extends to encompass a device with multiple gas-confining chambers. Figure 2, for instance, shows a single chamber. That chamber, as described in the claims, features a sterilizing zone separate and downstream from the plasma-generating zone. These zones denote regions and functions within the same chamber, rather than multiple chambers. Nothing in the written description suggests that the claim language encompasses a device with more than one gas-confining chamber. For example, to distinguish the RF sterilizer from the microwave sterilizer, the specification notes that the microwave plasma generator "cannot be mounted concentric about the long axis" shown in figure 2. Col. 7, ll. 57-58. The specification continues:

[T]he microwave cavity 16 is mounted at one end of chamber 11, and a perforated metallic shield 17 may be placed just beyond it toward the opposite end of the chamber, spanning the entire diameter

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cross section of the chamber, thus creating a field-free and glowless reactive zone immediately below it and away from the microwave cavity.

Col. 7, ll. 59-65. This explanation discloses a non-metallic sterilization zone separate from the metallic plasma-generating zone within the same chamber. While a Faraday shield lies between the zones, both zones are contained within *the* single chamber 11. MDT argues that these clearly separate zones disclosed in the specification evidence the district court's error in stating that the Jacob patents do not cover plasma generation "in *an enclosure* that is *in any way separate* from *the enclosure* in which the sterilization takes place." To the contrary, although a Faraday shield separates the zones to prevent free passage of particular particles, the zones remain within the same chamber, not in distinct gas-confining chambers.

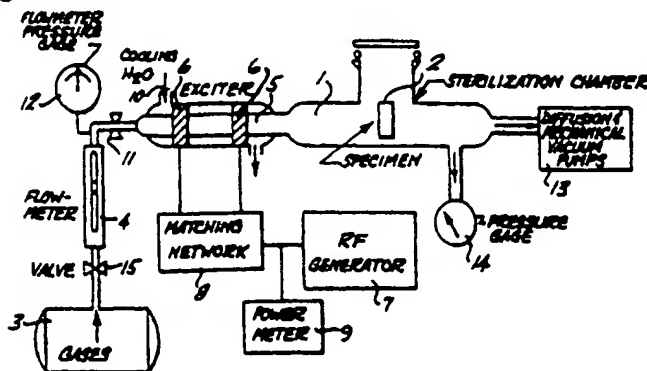
The record of administrative proceedings at the Patent and Trademark Office (PTO) provides additional context for understanding the claim terms. As briefly discussed above, the '261 and '586 patents have a common parent application which matured into the '427 patent. The '427 patent claimed both microwave and RF embodiments. Claim 2 of the '427 patent, for instance, defines a plasma generator with an RF energy source. During the prosecution of the '427 patent application, the examiner rejected independent application claim 2 and dependent application claim 7 as being unpatentable over prior art. Application claim 2, as amended, read:

A method for sterilization of medical devices and materials comprising the steps of, placing said devices and materials within a gas-tight confining chamber wherein said chamber is cylindrical, formed from metal, and includes an internal electrode formed as a perforated metallic

cylinder positioned within, and generally concentric with, said chamber cavity, evacuating said chamber . . . ; initiating an electrical discharge in said gas within said chamber by application of RF energy between the metal container wall and said internal electrode creating a gas plasma; and maintaining said gas plasma for a controlled period of time, said chamber cavity creating a field free and glowless volume within the perforated cylinder, said devices and materials being placed within said field free and glowless volume.

Dependent claim 7 read: "A method in accordance with claim 2 wherein said gas is flowed through said chamber during said discharge." Both claim 2 and claim 7 clearly and explicitly specified an RF electric field source.

In the rejection, the examiner noted that claim 7 was obvious in "further view of Fraser et al [U.S. Patent No. 3,851,436]. To flow the plasma gas through the chamber during the sterilization process in order to increase the effect of the sterilizing plasma gas would be obvious as taught by Fraser et al." Fraser, entitled "Sterilizing and Packaging Process Utilizing Gas Plasma," discloses a gas plasma sterilization process using an RF electric field source. As illustrated below, Fraser discloses a sterilizer with an upstream RF generator, wherein the sterilization chamber is separate from the plasma generator:



Fraser discloses neither a concentrically arranged sterilizer nor a sterilizer utilizing a microwave source.

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Jacob responded by canceling claims 2 and 7 and adding new claims 50-59. Claims 50-52 and 57-59 specified a method using an RF electric field source. Claims 53-56 claimed a method using microwave sources. For example, independent claim 50, which combined the limitations of 2 and 7, read:

A method for sterilization of medical devices and materials comprising the steps of, placing said devices and materials within a metallic perforated electrode, generally cylindrical in shape, said electrode being positioned within, and generally concentric with, a gas-tight confining chamber, said chamber being generally cylindrical, formed from metal and connected to a point of potential reference, evacuating said chamber . . . , initiating an electrical discharge in said gas within said chamber by *application of RF voltage* between said internal perforated electrode and the metal chamber wall, creating a gas plasma, having a field free and glowless volume within the perforated electrode containing said devices and materials, maintaining said gas plasma . . . , maintaining a flow of said gas through said chamber during said electrical discharge; and, evacuating the gas plasma residual gases from said chamber prior to withdrawing said devices and materials from it.

(Emphasis added.) Independent claim 53 read:

A method for sterilization of medical devices and materials comprising the steps of, placing said devices and materials within a gas-tight confining chamber, said chamber being generally cylindrical, formed from non-metallic material, evacuating said chamber . . . , initiating a microwave discharge in said gas within said chamber by *application of microwave energy* at one end of said chamber remote from said devices and materials creating a gas plasma, maintaining said gas plasma . . . , maintaining a flow of said gas through said chamber during said electrical discharge; and, evacuating the gas plasma residual gases from said chamber prior to withdrawing said devices and materials from it.

(Emphasis added.) Thus, these different claims specified different energy sources.

To clarify his changes to overcome the examiner's rejections, Jacob explained his amendments: Each of Applicant's independent Claims 50, 51 and 52 are limited to methods including such [a concentric] arrangement and [RF] electrical methodology . . . .

....  
The Fraser reference discloses a method which differs sharply from Applicant's method. In essence Fraser generates his plasma in a nonconducting glass reactor capacitively coupled to an RF source, and *exposes materials to be sterilized in a separate chamber away from and downstream from the plasma generating device. Applicant performs the sterilization process within the confines of the plasma generating device* .

From previous considerations, Fraser's method yields high plasma potentials, coupled with elevated processing temperatures. However, due to this separation, the net concentration of active species reaching the sterilization chamber is substantially reduced by exponential decay processes of these species during their time-of-flight from one place to the other. Fraser's corresponding process' inefficiency manifests itself by its incapability to sterilize material through hermetically sealed enclosing packages . . . in clear contradiction to Applicant's method capability.

(Emphasis added.) Jacob clearly restricted this argument to claims 50-52. These arguments were not relevant at all to the microwave embodiment of Jacob's invention. As to claims 53 and 54, the microwave energy source claims, Jacob argued: "Claim 53 is directed to a method employing a microwave energy source. None of the prior art shows any recognition that the plasma so generated would be suitable for sterilization purposes." As to claim 56, Jacob argued: "None of the art shows or suggests a plasma chamber with a microwave energy source and a perforated shield . . . ."

Following these actions, the examiner determined that the claims to a microwave-generated plasma process were an independent and distinct invention. The examiner, therefore, required Jacob to cancel the claims pertaining to microwave energy sources. Subsequently, the application containing the claims of the RF embodiment matured into the '427 patent, which consequently limits Jacob's RF source claims to only a concentric configuration apparatus. Jacob then claimed the microwave-generated plasma in continuing applications. At all times during the prosecution, Jacob maintained the distinction between the microwave and RF embodiments. Jacob's RF energy claims feature

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concentric configurations while the microwave energy claims permit separate zones -- but not separate gas-confining chambers -- for plasma generation and sterilization.

[2] In considering the prosecution history, the trial court erred by importing limitations from the disclosures of RF technology into the claims applicable solely to microwave technology. Without acknowledging the distinction between RF and microwave claims, the district court merely referred generically to the parent application to apply a limitation to both kinds of claimed devices:

The prosecution history of the Jacob Patents contains clear and unambiguous statements to the effect that MDT's device is materially different from devices in which the plasma is generated in an enclosure that is in any way separate from the enclosure in which sterilization takes place.



899 F. Supp. at 781. However, upon closer inspection, Jacob's statements about RF technology during the prosecution of the '427 patent application are not relevant to this dispute over microwave-generated sterilization. The district court erred by applying limits applicable only to RF technology to this dispute over microwave technology. Read in context, the prosecution history supplies no express single chamber limitation on microwave sterilizers, though such a limitation clearly applies to RF technology.

The prosecution history relevant to this dispute includes not only the two distinct Jacob patent applications, but also the parent application. See *Jonsson v. Stanley Works*, 903 F.2d 812, 818, 14 USPQ2d 1863, 1869 (Fed. Cir. 1990) (prosecution history of parent application is relevant to understanding scope of claims issuing in a continuation-in-part application); *Mark I Mktg. Corp. v. R.R. Donnelley & Sons Co.*, 66 F.3d 285, 291, 36 USPQ2d 1095, 1100 (Fed. Cir. 1995), *cert. denied*, 116 S. Ct. 917 (1996). However, statements in the parent application must be confined to their proper context and properly acknowledge the distinctions between RF and microwave claims. The prosecution history relied upon by the district court ("Applicant performs the sterilization process within the confines of the plasma generating device."), however, refers only to RF plasma generators, not to the microwave plasma generator in this case. In other words, the arguments made by Jacob to distinguish claims 50-52 over Fraser are drawn to the RF embodiment. As can be seen in figure 3, *supra*, the sterilization occurs within the cylindrical Faraday shield which itself is within the surrounding wall of the chamber. Thus, for the RF embodiment, the Jacob patent does "perform [ ] the sterilization process within the confines of the plasma generating device." This single chamber limitation, however, is neither necessary nor applicable to the microwave embodiment. The district court misread the prosecution history, but nonetheless arrived at a correct single chamber limitation for microwave sterilizers. That reliance on the prosecution history was in error. Nevertheless, because the claim language, as interpreted in light of the specification, limits the microwave devices to a single gas-confining chamber, this court affirms the district court's grant of summary judgment.

### III.

In a counterclaim, AbTox alleged that MDT infringed its '232 patent. MDT moved for partial summary judgment on the basis that 35 U.S.C. Section 271(e)(1) (1994) shielded its activities from infringement. In a separate opinion, the district court granted MDT's motion and certified for immediate appeal the legal question of whether section 271(e)(1) precludes infringement. 888 F. Supp. 6 (D. Mass. 1995). During the development of a plasma sterilizer, Jacob and his company Exitron hired MDT to conduct tests on the device. Between 1990 and 1993, Exitron and MDT conducted limited tests consistent with the collection of data necessary for filing an application with the Food and Drug Administration (FDA) for approval of its Class II medical device. AbTox alleges that the actual purpose of these tests was not to secure FDA approval, but was intended, *inter alia*, to promote the plasma sterilizer and other equipment to potential customers and induce MDT to purchase the rights to the device, which it did in 1993. At the time of this litigation, MDT had neither filed an application for approval with the FDA nor otherwise marketed the device.

35 U.S.C. Section 271(e)(1) states:

It shall not be an act of infringement to make, use, offer to sell, or sell within the United States or import into the United States a patented invention . . . solely for uses reasonably related to the development and submission of information under a Federal law which regulates the manufacture, use, or sale of drugs or veterinary biological products.

By its terms, this shield from infringement permits use of "patented invention [s]" to acquire information for regulatory approval of "drugs or veterinary biological products." The patented invention in this case, however,

is a Class II medical device. Thus, the legal question arises of whether section 271(e)(1) applies in this setting. AbTox argues, first, that section 271(e)(1) is inapplicable to the plasma sterilizer. Second,



AbTox insists that even if section 271(e)(1) applies, MDT's use was not reasonably related to FDA approval. Because this issue depends on statutory construction, this court reviews the district court's judgment as a question of law. See *Romero v. United States*, 38 F.3d 1204, 1207 (Fed. Cir. 1994).

#### A.

In *Eli Lilly & Co. v. Medtronic, Inc.*, 496 U.S. 661 [ 15 USPQ2d 1121 ] (1990), the Supreme Court held that section 271(e)(1) applies to medical devices in addition to drugs and veterinary biological products. Nevertheless, AbTox argues that the noninfringement provision of section 271(e)(1) does not apply to the type of medical device at issue. Because this issue appears to raise a novel question of law -- the applicability of section 271(e)(1) to Class II medical devices -- this court interprets the statutory language in view of the Supreme Court's reading of the passage and the overall statutory scheme of Title 35 and medical device regulation.

The Federal Food, Drug, and Cosmetic Act (FDCA), 21 U.S.C. Sections 301-395 (1994), through the Medical Device Amendments of 1976, classifies medical devices in three categories based on the risk posed by their use. The Supreme Court recently discussed the classification of devices:

Devices that present no unreasonable risk of illness or injury are designated Class I and are subject only to minimal regulation by "general controls." 21 U.S.C. Section 360c(a)(1)(A). Devices that are potentially more harmful are designated Class II; although they may be marketed without advance approval, manufacturers of such devices must comply with federal performance regulations known as "special controls." *Id.* Section 360c(a)(1)(B). Finally, devices that either "present a potential unreasonable risk of illness or injury," or which are "purported or represented to be for a use in supporting or sustaining human life or for a use which is of substantial importance in preventing impairment of human health," are designated Class III. *Id.* Section 360c(a)(1)(C).

*Medtronic, Inc. v. Lohr*, 116 S. Ct. 2240, 2246 (1996). While new Class III devices must undergo a rigorous premarket approval process, see 21 U.S.C. Section 360e, Class I and II devices enjoy an abbreviated approval process, *id.* Section 360(k). As the Supreme Court noted, the approval process for Class II devices "is by no means comparable" to the premarket approval necessary for Class III devices. *Medtronic*, 116 S. Ct. at 2247.

In *Eli Lilly*, the Supreme Court addressed the question of whether any medical devices fell within the noninfringement provision of section 271(e)(1). The devices examined by the Court in *Eli Lilly*, implantable cardiac defibrillators, were Class III devices. *Eli Lilly* argued that the statute covered only uses related to "a Federal law which regulates . . . drugs or veterinary biological products." Section 271(e)(1) (emphasis added). Because medical devices were not "drugs or veterinary biological products," *Eli Lilly* argued, the unauthorized use of the cardiac defibrillators did not fall within the express terms of the shield.

The Supreme Court, however, interpreted the phrase "a Federal law" to refer to "an entire statutory scheme of regulation" not merely to single sections or subsections related to drugs or veterinary biological products. *Eli Lilly*, 496 U.S. at 666. Therefore, the Court broadly held that section 271(e)(1) applies to any use reasonably related to regulation under the FDCA, which certainly includes Class II devices.

The Court, however, also based its analysis on the entire statutory scheme of the Drug Price Competition and Patent Term Restoration Act of 1984, Pub. L. No. 98-417, 98 Stat. 1585 (the 1984 Act), from which the noninfringement provisions of section 271(e)(1) arose. The 1984 Act added two fundamental concepts to the patent statute. Section 202 of the 1984 Act added the infringement shield of 35 U.S.C. Section 271(e). Of equal importance, section 201 of the 1984 Act supplied a partial restoration of patent terms when the lengthy regulatory approval process delays marketing of patented inventions. Thus, section 201 added the patent term extensions of 35 U.S.C. Sections 155-56 (1994). As recognized by the Court in *Eli Lilly*, the infringement shield of section 271(e) and the patent term extension of section 156 are the result of debate and compromise. Section 156 supplied patentees, mostly large research and development operations, the benefits of term extensions to erase the de facto reduction of their patent term. Section 271(e) supplied potential infringers, for example generic drug

manufacturers, the benefits of an infringement shield to erase the de facto extension of the patent term caused by the requirement to await patent expiration before starting the tests for regulatory compliance. Thus the 1984 Act supplied tradeoff

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benefits to competing segments of the pharmaceutical industry. From the perspective of R & D pharmaceutical corporations, for instance, the law giveth, section 156, and the law taketh away, section 271(e)(1). 2

In addition to the interpretation of "a Federal law," the Court in *Eli Lilly* discussed and found support for its interpretation in the interplay between section 156 and section 271(e). *Eli Lilly*, 496 U.S. at 673 (" [T]here are textual indications that sections 201 and 202 [of the 1984 Act] are meant generally to be complementary."). In other words, in determining which products fit within the bounds of Section 271(e)(1), the Court looked to the far more explicit Section 156. The Court stated:

Interpreting Section 271(e)(1) as the [Federal Circuit] did here appears to create a perfect "product" fit between the two sections. All of the products eligible for a patent term extension under [Section 156] are subject to [Section 271(e)(1)], since all of them . . . are subject to premarket approval under various provisions of the FDCA. . . .

496 U.S. at 673-74. See *Eli Lilly & Co. v. Medtronic, Inc.*, 872 F.2d 402, 405 [ 10 USPQ2d 1304 ] (Fed. Cir. 1989) (" [T]he benefits of patent extension are not restricted to drugs, but extend to medical devices."), *aff'd*, 496 U.S. 661 [ 15 USPQ2d 1121 ] (1990).

[3] This Supreme Court reasoning creates the rub for this case. As the Supreme Court reasoned, Class III devices are eligible for a patent term extension under section 156, and therefore application of the section 271 infringement shield to these devices creates a convenient statutory symmetry. Title 35 both giveth and taketh away. Class II devices, however, are not eligible for patent term extensions. Specifically, section 156 defined the method of calculating the regulatory review period for a corresponding term extension. The section limits the regulatory review period for medical devices to those devices that require review under section 515 of the FDCA. 35 U.S.C. Section 156(g)(3)(B). In turn, 21 U.S.C. Section 360e [FDCA Section 515] applies only to Class III devices. Title 35 thus supplies no extension for Class II devices, such as the plasma sterilizer at issue in the instant case. Therefore, under the broad holding of *Eli Lilly*, all classes of medical devices fall within the plain meaning of section 271(e)(1). Nevertheless, under the Court's narrower justification of statutory symmetry, only Class III devices fall within the section. Ultimately, this court must follow the Supreme Court's broader holding, which remains in force despite a potential conflict with its own narrower reasoning. Section 271(e)(1) makes no distinctions based upon the different FDA classes of medical devices or drugs. Moreover, the Court explicitly accepted a statutory interpretation "in which a patentee will obtain the advantage of the [section 156] extension but not suffer the disadvantage of the [section 271(e)(1)] noninfringement provision, and others in which he will suffer the disadvantage without the benefit." 496 U.S. at 671-72. In other words, the Supreme Court commands that statutory symmetry is preferable but not required. Therefore, the Supreme Court disposed of the argument, made here by AbTox, that section 271(e)(1) is limited to Class III devices. Section 271 (e) (1) contains no such limitation.

## B.

[4] Contrary to AbTox's second contention regarding the scope of the provision, section 271(e)(1) requires only that the otherwise infringing act be performed "solely for *uses* reasonably related to" FDA approval. 35 U.S.C. Section 271(e)(1) (emphasis added). The statute, therefore, does not look to the underlying purposes or attendant consequences of the activity ( *e.g.*, tests led to the sale of the patent), as long as the use is reasonably related to FDA approval. In other words, the statutory language allows MDT to use its data from the tests for more than FDA approval. See *Teletronics Pacing Sys., Inc. v. Ventritex Inc.*, 982 F.2d 1520, 1524-25, 25 USPQ2d 1196, 1199 (Fed. Cir. 1992)

(demonstration at conference and dissemination of data to investors for business purposes held noninfringement) ("If Congress intended to make [immediate competition at the end of the patent term] more difficult, if not impossible, by preventing competitors from using, in an admittedly non-infringing manner, the derived test data for fund raising and other business purposes, it would have made that intent clear."). As long as the activity is reasonably related to obtaining FDA approval, Jacob's intent or alternative uses are irrelevant to its qualification to invoke the section 271(e)(1) shield. Even drawing all factual inferences in favor of AbTox, the activities of MDT were either non-infringing or reasonably related to seeking FDA approval.

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#### IV.

For the reasons stated above, this court affirms the district court's holding granting AbTox's motion for summary judgment of non-infringement of MDT's asserted patents. In addition, this court affirms the district court's holding of non-infringement of the '232 patent.

#### COSTS

Each party shall bear its own costs. *AFFIRMED* .

#### Footnotes

Footnote 1. Because claims 6 and 8 of the '261 patent mirror claim 3, it is unnecessary to provide the text.

Footnote 2. The 1984 Act contained additional provisions, *e.g.* , authorization of the filing of abbreviated new drug applications; nevertheless, for the instant analysis those provisions need not be discussed.

- End of Case -

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**FULL TEXT OF CASES (USPQ FIRST SERIES)**

Kloster Speedsteel AB, et al. v. Crucible Inc., et al., 230 USPQ 81 (CA FC 1986)

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Kloster Speedsteel AB, et al. v. Crucible Inc., et al., 230 USPQ 81 (CA FC 1986)

## **Kloster Speedsteel AB, et al. v. Crucible Inc., et al.**

**(CA FC)**  
**230 USPQ 81**

**Decided June 11, 1986**

**Nos. 85-2174, 85-2214, 85-2215 and 85-2274**

**U.S. Court of Appeals Federal Circuit**

### **Headnotes**

#### **PATENTS**

##### **1. Patentability -- Anticipation -- In general (§ 51.201)**

Federal district court properly found that prior art patent did not anticipate claimed alloy body, despite evidence that prior art figure could be scaled to match claims limitations, since nothing in prior art patent discloses actual size of carbide particles.

##### **2. Patentability -- Anticipation -- Process (§ 51.225)**

##### **Patentability -- Invention -- Specific cases -- Chemical (§ 51.5093)**

Testimony, in declaration of infringement action, as to whether processes of prior art would result in product having properties of claimed alloy body, which led federal district court to discuss processes in its opinion, does not establish that court erroneously based its judgment on view that claimed invention was process.

##### **3. Patentability -- Invention -- Specific cases -- Chemical (§ 51.5093)**

Claimed alloy body's achievement in doing what those skilled in art suggested should not be done--of using lower temperatures and limiting carbide size--is strongly probative of non-obviousness.

##### **4. Patentability -- Tests of -- Skill of art (§ 51.707)**

Patent challenger's contention that federal district court erred when it did not find specific level in art is without merit, since patent challenger was not prejudiced by court's having looked to other inventors, rather than one of ordinary skill.

### **5. Patentability -- Evidence of -- Commercial success -- In general (§ 51.4551)**

Patent challenger's attempt to denigrate commercial success of claimed invention, to which it and patent holder had earlier stipulated, by citing delay between patent application and commercial success, is not valid, since mere passage of time may not be enough to discredit nexus with commercial success, since patent challenger has shown no basis for its attack, and since federal district court attributed proper weight to other objective evidence, such as filling of longfelt and unsolved need, failure of others, and wide acceptance of claimed invention.

### **6. Accounting -- Increased or treble damages or profits (§ 11.35)**

Federal district court's refusal to impose increased damages does not mean that court found infringement not willful, but if such finding is implicit, it is clearly erroneous, in view of accused infringer's failure to seek advice of counsel, despite patent holder's warnings, and its admitted "strategy" of continuing infringement in hope that court would hold patent invalid.

### **7. Injunction -- In general (§ 40.1)**

#### **Infringement -- Contributory infringement (§ 39.30)**

Corporation that was created by infringer immediately after conclusion of patent infringement trial and before judgment, in order to evade effect of possible injunction, and that purchased facility infringer used to manufacture products found to infringe, is bound by injunction, and may appeal federal district court's refusal to modify it, despite agreement between infringer and corporation that corporation accepted no liability for infringement.

#### **Particular patents -- Alloys**

3,561,934, Steven, Sintered Steel Particles Containing Dispersed Carbides, holding of validity affirmed.

3,746,518, Holtz, Jr., Alloy Composition and Process, holding of validity of claim 30 affirmed.

#### **Case History and Disposition:**

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Appeal from District Court for the Western District of Pennsylvania, Diamond, J.; 226 USPQ 36.

Consolidated actions by Crucible Inc., against Stora Kopparbergs Bergslags, AB, and Uddeholms, AB, for patent infringement, and by Stora Kopparbergs Coporation, and Uddeholm Steel Corporation, against Crucible Inc., Crucible Materials Corp., et al., for declaration of patent invalidity. From judgment for Crucible Inc., et al., Kloster Speedsteel AB, et al., appeal. Affirmed in part and remanded in part.

See also 224 USPQ 714 and 226 USPQ 842.

**Attorneys:**

Francis J. Hone, and Brumbaugh, Graves, Donohue & Raymond, both of New York, N.Y. (Richard S. Clark, and Brumbaugh, Graves, Donohue & Raymond, both of New York, N.Y., on the brief) for Stora, et al.

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Wayne A. Cross, New York, N.Y. (William Dunnegan, Reboul, MacMurray, Hewitt, Maynard & Kristol, Arthur D. Gray, Stuart J. Sinder, William J. McNichol, Scott A. Wisser, and Kenyon & Kenyon, of counsel) for Kloster, et al.

FordR. Farabow, Jr., and Finnegan, Henderson, Farabow, Garrett & Dunner, both of Washington, D.C. (Michael C. Elmer, Allen M. Sokal, and Finnegan, Henderson, Farabow, Garrett & Dunner, on the brief) for Crucible, et al.

**Judge:**

Before Markey, Chief Judge, Nichols, Senior Circuit Judge, and Newman, Circuit Judge.

**Opinion Text**

**Opinion By:**

Markey, Chief Judge.

Consolidated appeals from a judgment of the United States District Court for the Western District of Pennsylvania holding claim 30 of U. S. Patent No. 3,746,518 ('518 patent) and claim 4 of U. S. Patent No. 3,561,934 ('934 patent) valid and infringed. *Crucible, Inc. v. Stora Kopparbergs Bergslags AB*, 594 F. Supp. 1249, 226 USPQ 36 (W.D. Pa. 1984). We affirm in part and remand in part.

**Background**

**(1) Proceedings in the District Court**

In 1974, Crucible, Inc. (Crucible), assignee of the '518 patent (issued July 17, 1973 to Frederick C. Holtz, Jr., on an application filed February 26, 1965), and of the '934 patent (issued February 9, 1971 to Gary Steven on an application filed September 11, 1967), charged Stora Kopparbergs Bergslags AB and Stora Kopparberg Corp. (Stora) with patent infringement in manufacturing and selling "ASP" steel products. On July 25, 1974, Stora filed a declaratory judgment action in the United States District Court for the District of New Jersey alleging patent invalidity, non-infringement, and violation of the antitrust laws. On October 4, 1974, Crucible <sup>1</sup>sued Stora <sup>2</sup>in the Western District of Pennsylvania, where the district court consolidated the suits and severed the antitrust and damage issues for later trial.

In 1976, a proceeding was initiated in the Patent and Trademark Office (PTO) on Stora's protest against a continuing application related to the '518 patent. Crucible's failure to cite a reference during prosecution of the application that resulted in the '518 patent was reviewed in that proceeding.

The district court tried the case without a jury on 18 dates between September 13 and October 6, 1982, filed an opinion on September 19, 1984, and entered judgment for Crucible on October 11, 1984. The court held that: (1) claim 30 of the '518 patent had not been proved invalid under 35 U.S.C. §§102, 103, or 112, and was infringed by Stora. (2) claim 4 of the '934 patent had not been proved invalid under 35 U.S.C. §§102 or 103; <sup>3</sup>(3) Stora had waived its defense that the patents were unenforceable because of inequitable conduct; (4) Crucible was not entitled to increased damages; and (5) no litigant was entitled to attorney fees. In its October 11, 1984 order, the court permanently enjoined Stora and its "successors in interest and assigns" from making infringing ASP steel products.

On October 31, 1982, the 25th day after trial and almost two years before the court's decision, Fagersta AB, a Swedish corporation, and Stora formed Kloster Speedsteel AB and its subsidiary, Speedsteel of New Jersey, Inc. (Kloster), and Kloster purchased the facility Stora used to make the infringing products.

In a March 12, 1985 order disposing of post-trial motions, the district court reviewed its decision and opinion in light of arguments presented by Stora (and repeated by Stora before us). The court: (1) denied a motion by Kloster to modify the injunction by excluding Kloster or by deleting "successors in interest and assigns"; (2) refused to stay the injunction pending appeal; (3) amended the October 11, 1984 order to enjoin Stora from infringing the specifically upheld claims; and (4) anticipating an appeal, amended its opinion to enter a finding that undisclosed art was not more material than that considered by the examiner, and that, if Stora had not waived its unenforceability defense, it had in any event failed to establish inequitable conduct before the PTO. 226 USPQ 842 (W.D. Pa. 1985).

Stora in Appeal No. 85-2215 and Kloster in Appeal Nos. 85-2174/2274 <sup>4</sup>contest the de

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termination that Stora had not shown the claims invalid, <sup>5</sup>and Kloster contests the refusal to modify the injunction. In Appeal No. 85-2214, Crucible cross-appeals from the portion of the judgment refusing to find willful infringement and denying increased damages under 35 U.S.C. §284 and attorney fees under 35 U.S.C. §285. On stipulated motion, this court consolidated the appeals on June 14, 1985. <sup>6</sup>

## **(2) The Technology**

The present field of technology is that of metal alloy compositions. The focus at trial was on "high speed" tool steels used to make metal cutting tools. High speed tool steels must possess properties of grindability, heat resistance, hardness, toughness, and dimensional stability. Those properties minimize tool replacement and resulting production line shutdowns.

High speed tool steels generally contain relatively large amounts of carbon and significant amounts of alloying elements that form metallic carbides distributed throughout the microstructure of the steel. Conventionally cast high speed tool steels have a microstructure characterized by an inhomogeneous distribution of coarse carbides, i.e., striations and stringers resulting primarily from the time required to cool the ingot. That carbide distribution adversely affects grindability and cutting efficiency.

Prior art workers investigated powdered metallurgical techniques. Those workers initially produced a particulate alloy, preferably by atomization, and then applied heat and pressure to consolidate the resulting powders into an integral product.

To achieve substantially full density, workers had to compact the powders at elevated temperatures. High temperatures, however, cause increased rate of carbide growth and agglomeration and loss of carbon. Low temperatures, on the other hand, render the powder insufficiently malleable for suitable

densification. Thus, prior art workers had to choose between high densification and fine carbide size. The invention disclosed in the '518 patent made it possible for the first time to maintain fine, uniformly dispersed carbides while achieving a fully dense product having satisfactory interparticle bonding.

### **(3) The Claims in Suit**

Claim 30 of the '518 patent reads:

A consolidated integral alloy body which is substantially fully dense formed of a hot worked supersaturated solid solution of an inherently alloying composition, said alloy body consisting essentially of a continuous metallurgical phase with a uniformly disbursed hard phase of minute dispersed hard phase particle sizes that are substantially entirely less than three microns in maximum dimension, said alloying composition consisting essentially by weight from about .5% to about 5% carbon at least 10% of a hard phased forming element selected from the group consisting of Cr, W, Mo, Ti, Ta, Nb, Zr, Hf, V, and Al, and mixtures thereof, and the remainder base metal and incidental impurities, wherein said base metal is selected from the group consisting of cobalt, iron and nickel, and wherein the total amount of base metal is at least 30%.

Claim 4 of the '934 patent reads:

An article of manufacture as defined in claim 2, in the form of a hob for use in milling applications.

On May 2, 1978, Crucible disclaimed, under 35 U.S.C. §253, claim 1 and its dependent claim 2 of the '934 patent. Because it depends from and thus includes all limitations of claims 1 and 2, however, claim 4 properly reads:

As an article of manufacture, a metal body constructed of compacted particles of a high speed tool or die steel composition containing a metal component capable of reacting with carbon to form carbides, said reactive metal component being at least one metal selected from the group consisting of titanium, vanadium, molybdenum, zirconium, columbium, tungsten and tantalum each of said particles having carbides of said reactive metal substantially evenly dispersed throughout, said body having a hardness of at least about 58 R<sub>c</sub> and being characterized by size change uniformity upon austenitising, quenching and tempering, the composition of said metal body [consisting] of, in percent, 0.80 to 3.00 carbon, up to 2 manganese, up to 1 silicon, up to 0.5 sulfur, up to 18.0 tungsten, up to 10.0 chromium, up to 12 molybdenum, up to 5 vanadium, up to 12 cobalt and balance iron, with tungsten + molybdenum + chromium + vanadium being equal to at least 10 percent, [said metal body being] in the form of a hob for use in milling applications.

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### **Issues Presented**

Whether the district court erred in: (1) refusing to hold the asserted claims invalid; (2) refusing to hold the patents unenforceable; (3) denying increased damages and attorney fees; and (4) enjoining Stora's "successors in interest and assigns".

### **OPINION**

#### **(1) Validity**

To meet its burden at trial, Stora was required to prove by clear and convincing evidence facts



compelling a conclusion of invalidity. *See Datascope Corp. v. SMEC, Inc.*, 776 F.2d 320, 323-24, 227 USPQ 838, 840-41 (Fed. Cir. 1985). To meet its burden on appeal, Stora must persuade this court that the district court committed reversible error in determining that it had failed to meet its burden at trial. It must do so by convincing us that the court's probative findings underlying its holdings on validity were clearly erroneous or that its legal conclusions on that issue cannot be supported by those findings or are incorrect as a matter of law. *Atlas Powder Co. v. E. I. DuPont De Nemours*, 750 F.2d 1569, 1573, 224 USPQ 409, 411 (Fed. Cir. 1984).

### **A. Claim 30 of the '518 Patent**

The district court properly noted that Stora failed to proffer prior art more pertinent than that considered by the PTO and therefore had the "added burden of overcoming the deference that is due to a qualified government agency presumed to have properly done its job." *American Hoist & Derrick Co. v. Sowa Sons, Inc.*, 725 F.2d 1350, 1359, 220 USPQ 763, 770 (Fed. cir.), *cert. denied*, 105 S. Ct. 95, 224 USPQ 520 (1984). That deference merely recognizes the statutory mandate that all patents shall be presumed valid. 35 U.S.C. §282; *see Fromson v. Advance Offset Plate, Inc.*, 755 F.2d 1549, 1555, 225 USPQ 26, 31 (Fed. Cir. 1985).

The court appropriately gave weight to two PTO Board of Appeals (Board) decisions on the application that related to that on which the '518 patent issued. The Board there resolved issues pertinent to those presented to the district court in this case. *See In re Holtz*, 224 USPQ 714 (Bd. App. 1984) (materiality of uncited art); *In re Holtz*, Appeal No. 470-30 (Bd. App. Aug. 6, 1981) (unpublished) (obviousness). Stora fully participated since 1976 in the PTO proceedings that led to those decisions. Because both sides agreed at trial that the PTO's decisions should be accorded "great weight by the court," Stora's assertion on appeal that the district court gave undue deference to the PTO decisions comes with poor grace.

#### **(a) Anticipation**

Stora says the district court should have found claim 30 anticipated under §102 by the disclosure in U. S. Patent No. 3,150,444, issued September 29, 1964 to Orville W. Reen (Reen patent). Relying principally on figure 2 of the Reen patent, Stora says that figure can be scaled and the carbide particles it shows can then be measured at three microns or less. Stora, however, must show that each element of the claim is found in that single prior art reference. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 771, 218 USPQ 781, 789 (Fed. Cir. 1983), *cert. denied*, 465 U.S. 1026, 224 USPQ 520 (1984). The corollary of that rule is that absence from the reference of any claimed element negates anticipation. *Atlas Powder Co.*, 750 F.2d at 1573-74, 224 USPQ at 411. The district court found no anticipation. That finding is reviewed under the clearly erroneous standard. *Id.*

[1] The district court found, as had the PTO, that nothing in the Reen patent discloses the actual size of the carbides, 594 F. Supp. at 1255, 226 USPQ at 40, and Stora has not shown that finding to have been clearly erroneous. That a defendant may when sued so measure a photograph as to match one limitation relating to size does not establish anticipation. In all events, the district court found that the Reen patent fails to disclose other elements, i.e., chemical inhomogeneity, inability to achieve full density without sacrificing fine carbide size, and Stora has not shown that finding to have been clearly erroneous.

#### **(b) Obviousness**

Stora says the district court made erroneous findings and misapplied the law under 35 U.S.C. §103, even though the court cited *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). More specifically, Stora contends that the district court: (i) considered and

discussed only the process disclosed in the '518 patent, not the product set forth in claim 30; (ii) failed to ascertain differences between the invention set forth in claim 30 and the prior art; (iii) failed to find the level of ordinary skill; and (iv) gave undue weight to the objective evidence because it bore no nexus with the claimed invention.

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### **(i) Process**

Stora builds its first argument on one sentence in the court's opinion in which it called the invention a "method and process." On the presence of that single sentence, Stora says attributes of method claims in the '518 patent were "brought into play to save claim 30."

[2] In its focus on the phraseology in the court's opinion, Stora reflects its failure to appreciate the appellate function. This court reviews judgments, not phrases. *Fromson*, 755 F.2d at 1556, 225 USPQ at 31. To be relevant on appeal, phrases in a trial court's opinion must be shown not only to have been used in error, but must be shown to have served as the basis of the judgment appealed from. Stora makes no such showing. On the contrary, Stora simply disregards references by the district court to the claimed invention as a product. Much testimony on both sides related to whether the processes of the prior art would result in a product having the properties of the alloy body claimed, and the court was led thereby to discuss processes in its opinion. That fact does not establish, however, that the court based its judgment on the view that the invention of claim 30 was a process.

### **(ii) Differences**

Stora's principal prior art references are: the Reen patent; *Progress Report on Hot Forging Prealloyed Metal Powders*, 10 Precision Metal Molding 38 (Nov. 10, 1952) by Lambert H. Mott (Mott); and British Patent No. 781,083 issued August 14, 1957 to Gregory J. Comstock (Comstock).

Stora urges this court to find that the Reen patent disclosed temperatures similar to those disclosed in the '518 patent and that therefore Reen need not have included a warning against carbide growth. We are also asked, as was the district court, to reexamine the figure in Reen and measure the size of carbide particles in the figure.

The role of this court on appeal from a judgment of a district court is not that of an examiner considering a claim in an application in light of the prior art. *See Polaroid Corp. v. Eastman Kodak Co.*, No. 86-604 slip op. at 4-7, 229 USPQ 561 (Fed. Cir. Apr. 25 1986). Here, a patent has issued, a trial has been conducted on 18 dates, much testimonial and documentary evidence has been received and evaluated by a district judge. Assuming *arguendo* that Stora's and the district court's factual interpretations of the prior art were equally permissible, that circumstance would avail it nothing on appeal, for when there are two permissible views of the evidence, the factfinder's choice between them *cannot* be deemed clearly erroneous. *Anderson v. City of Bessemer City, N.C.*, \_\_\_ U.S. \_\_\_, \_\_\_, 105 S. Ct. 1504, 1512 (1985). Stora must on appeal establish not only that its view is permissible but that that of the district court is clearly in error.

As all too frequently occurs on appeal, Stora limits its discussion to evidence that tends to support its view, largely ignoring the contrary evidence accepted by the district court. Particularly ignored are the district court's credibility determinations. That approach cannot of itself establish that the district court's findings were clearly erroneous. *See American Original Corp. v. Jenkins Food Corp.*, 774 F.2d 459, 462-63, 227 USPQ 299, 300-01 (Fed. Cir. 1985).

"Determining the weight and credibility of the evidence is the special province of the trier of fact." *Inwood Laboratories, Inc. v. Ives Laboratories, Inc.*, 456 U.S. 844, 856, 214 USPQ 1, 7 (1982).

At trial, Crucible's main witnesses, Mr. Neumeyer and Dr. Tien, testified that the prior art produced inferior cutting tool steels. Neumeyer said Comstock did not attain full density of fine carbides. He added that one practicing the subject matter of the Reen patent would be unable to achieve full density without sacrificing fine carbide size. Dr. Tien stated that Mott dealt with structural alloys from which satisfactory cutting tools could not be produced. That the district court credited that testimony is reflected in its statement:

We have considered all of the prior art references cited by [Stora] with special attention to those primary sources; i.e., Mott, Comstock and Reen I, and [have] concluded that no prior inventor was able to achieve the requisite combination of high density and finely dispersed carbides necessary to the production of top quality high speed tool steel. Indeed, no prior inventor even regarded such a combination as theoretically possible.

594 F. Supp. at 1257, 226 USPQ at 42 (footnote omitted).

The district court credited the testimony of Mr. Neumeyer and Dr. Tien, and rejected that of Stora's witness, Dr. Lawley. On this record, Stora has shown no "basis on which this court could engage in the normally inappropriate process of substituting a contrary credibility determination for that of the district court." *Windsurfing International Inc. v. AMF Inc.*, 782 F.2d 995, 999, 228 USPQ 562, 565 (Fed. Cir. 1986); see *Railroad Dynamics*,

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*Inc. v. A. Stucki Co.*, 727 F.2d 1506, 1514, 220 USPQ 929, 937 (Fed. Cir.), *cert. denied*, 105 S. Ct. 220, 224 USPQ 520 (1984).

[3] Moreover, the district court met Stora's contentions head-on, rejecting, for example, its argument that Reen did not have to warn against carbide growth. The district court correctly found, as had the PTO board, that "neither Reen nor Comstock even cautions against carbide growth at elevated temperatures." 594 F. Supp. at 1257 n.9, 226 USPQ at 42 n.9. Indeed, the Reen patent says, "generally the longer the time and higher the temperature, the higher the density of the sintered strip." Comstock, notwithstanding actual knowledge of Mott's carbide size discussion, advises the use of "as high a temperature as possible without melting." Thus, the inventor achieved the invention set forth in claim 30 by doing what those skilled in the art suggested should not be done, i.e., using lower temperatures, a fact strongly probative of nonobviousness. *W. L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 1552, 220 USPQ 303, 312 (Fed. Cir. 1983), *cert. denied*, 105 S.Ct. 172 (1984).

Lastly, the district court's determination that until the disclosure in the '518 patent became available no one could produce the combination of full density and fine carbide size found in the invention set forth in claim 30, and its determination that the limitation to carbides of less than three microns was not, in view of that fact, essential to its nonobviousness conclusion, are fully supported in the record. See *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 1345-46, 220 USPQ 777, 783-84 (Fed. Cir.), *cert. denied*, 105 S. Ct. 116 (1984).

In arguing that the district court failed to ascertain the differences between the invention set forth in claim 30 and the prior art, Stora has failed to carry its burden on appeal.

### (iii) Level of Skill

Stora's contention that the district court committed legal error when it did not find a specific level of skill in the art is equally without merit. In its opinion, the court said "no prior inventor even regarded [the '518 patent] combination as theoretically possible." 594 F. Supp. at 1257, 226 USPQ at 42. In denying a stay of the injunction pending appeal, the court indicated that it had considered the skill of prior inventors, rendering it unnecessary to find some other level of skill:

In other words, it was not obvious to *anyone* at *any* level of skill in the art prior to [the '518 patent]. Any further reference, finding, or definitions of level of skill in the art, in view of [the finding that no inventor thought the invention of claim 30 theoretically possible,] would have been superfluous.

226 USPQ at 843 (emphasis in original).

The primary value in the requirement that level of skill be found lies in its tendency to focus the mind of the decisionmaker away from what would presently be obvious to that decisionmaker and toward what would, when the invention was made, have been obvious, as the statute requires, "to one of ordinary skill in the art." 35 U.S.C. §103; *see Polaroid Corp., supra*, slip op. at 5.

This court has noted instances in which a particular level of skill finding did not improperly influence the ultimate conclusion under §103. One such instance involved a determination that an invention would have been *obvious* to one of the lowest level of skill, i.e., that of a layman. *See, e.g., Union Carbide Corp. v. American Can Corp.*, 724 F.2d 1567, 1573, 220 USPQ 584, 589 (Fed. Cir. 1984); *ChoreTime Equipment, Inc. v. Cumberland Corp.*, 713 F.2d 774, 779, 218 USPQ 673, 676 (Fed. Cir. 1983). Another involved a determination that an invention would have been *nonobvious* to those of *extraordinary* skill, i.e., other inventors in the art. *See Standard Oil Co. v. American Cyanamid Co.*, 774 F.2d 448, 454, 227 USPQ 293, 297-98 (Fed. Cir. 1985); *Kimberly-Clark Corp. v. Johnson & Johnson*, 745 F.2d 1437, 1454, 223 USPQ 603, 614 (Fed. Cir. 1984).

[4] To establish reversible error based on a level of skill finding, it must be shown that that finding led to error in the ultimate conclusion. Stora was not in this case prejudiced by the district court's having looked to other inventors, rather than one of ordinary skill. Stora wastes the time of all concerned in arguing that the district court's treatment of the level of skill constituted reversible error.

#### **(iv) Objective Evidence**

As the district court noted, the parties stipulated that the properties of the product set forth in claim 30 have led to substantial commercial success for Crucible and Stora. 594 F.Supp. at 1258, 226 USPQ at 43. Incredibly, Stora attempts on appeal to denigrate that commercial success.

Stora says, without citation to the record, that there is no nexus because powder metallurgy high speed tool steels did not emerge on the market until about 1970, years after the filing date of the application that matured into the '518 patent, that substantial sales were not realized until about 1975, two years after the '518 patent issued, and that some old features contributed to commercial success.

[5] Apart from Stora's apparent and disquieting effort to renege on its stipulation, Stora is

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wrong on the law. Mere passage of time may not be enough to discredit nexus with commercial success. *Windsurfing International*, 782 F.2d at 1000, 228 USPQ at 565 ("Absent some intervening event to which success must be attributed, the delay in achieving the great commercial success of the claimed invention in this case does not detract from the probative value of the evidence of that success."). Stora

has shown no basis whatever for its attack on the relevance of the commercial success which resulted, as Stora stipulated, from the properties of the invention.

Moreover, the district court attributed proper weight to the other objective evidence in this case, i.e., filling of a longfelt and unsolved need, failure of others, and wide acceptance and recognition of the claimed invention. Stora stipulated to that evidence and has not on appeal attempted to renege on that part of its stipulation.

### ***Conclusion on Nonobviousness of the Invention Set Forth in Claim 30***

Stora having failed to discharge its burden on appeal, the portion of the judgment based on the conclusion that the invention set forth in claim 30 of the '518 patent would not have been obvious must be affirmed.

### ***B. Claim 4 of the '934 Patent***

#### ***(a) Anticipation***

Before the district court, Stora argued that Crucible's attempt to provoke an interference between the '934 patent and the application disclosure that resulted in the '518 patent, and Crucible's accompanying "same invention" arguments, were proof that the latter anticipated claim 4 of the '934 patent. <sup>2</sup>Crucible countered with the PTO's refusal to declare the interference.

The district court correctly determined that the events relating to the interference were not controlling because Crucible admitted that size change uniformity is inherent in the alloy disclosed in the '518 patent. The district court found, however, that inherency of size change uniformity was alone insufficient, because "the existence of this inherency alone of merely one element of the claimed invention, does not fulfill the strict requirements of anticipation." 594 F. Supp. at 1262, 226 USPQ at 46.

Stora admits the correctness of the district court's finding that the '518 patent does not disclose hobs. That fact is itself sufficient to require affirmance of the district court's determination that the '518 patent does not anticipate claim 4 of the '934 patent.

#### ***(b) Obviousness***

The district court distinguished Comstock, Frehser, *Antitropic Dimensional Changes due to Heat Treatment of Ledeburitic Chrome Tool Steels* (Frehser), and Lement, *Distortion in Tool Steels* (Lement), finding that that prior art disclosed processes and alloys all of which failed to achieve the properties produced by the process disclosed in the '934 patent. The court said that Comstock failed to "attain full, or substantially full, density and uniformly distributed fine carbide particles," and that Frehser and Lement did not "even [consider] the production of tool steel through a powder metallurgy process." 594 F.Supp. at 1263, 226 USPQ at 47.

With respect to the prior art represented by the '518 patent, the district court said:

The principal benefit of the ['934] process is its elimination of the out-of-roundness traditionally characteristic in past methods of producing hobs. This, as we previously noted, is achieved through a hardening treatment phase which maximizes size change uniformity, a property particularly essential for hobs because of the reduction of out-of-roundness and resultant increased dimensional stability. While we find that [the '518 patent] is limited to cutting tools, the ['934 patented] process is [sic, would have been] not obvious.

594 F. Supp. at 1263, 226 USPQ at 47.

After evaluating all of the prior art and the objective evidence, the court concluded that the '934 "process is [sic, would have been] not only nonobvious, but appears to be [sic, have been] revolutionary in its elimination of dimensional instability in hobs." *Id.*

Stora argues that the district court focused on the process disclosed and not on the product claimed in the '934 patent. When Stora made the same argument in connection with its motion to stay the injunction, the district court responded that Stora had argued that similarities in the processes evidenced obviousness in the resulting products, and that the court employed "process" in responding to those arguments of Stora. The court also pointed to the reference in its opinion to the invention of the '934 patent as a "powder metallurgy hob, a cutting tool." 226 USPQ at 843. In addition, the court began its initial opinion with the statement that both patents "protect powder

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metallurgy cutting tool products." 594 F. Supp. at 1250, 226 USPQ at 37.

The burden of proving facts requiring a conclusion of invalidity was on Stora. Having adopted at trial a strategy and tactic involving comparison of the processes disclosed in the prior art and the '934 patent, Stora now seeks to change horses. That it cannot do. First, it would simply be unfair to re-run the race. Second, Stora has not shown that the differences found in the processes by the district court would not serve to produce corresponding differences in the claimed product.

Nor has Stora shown that reversible error resides in the district court's failure to expressly find, as Stora asserts, that the only difference between the invention set forth in claim 4 and the '518 patent disclosure is a hob. The evidence cited in Stora's brief was fully considered by the district court and no basis appears for a conclusion that the court did not fully consider that evidence.

In sum, Stora simply failed to prove at trial facts requiring a conclusion that one skilled in the art and having the disclosure of the '518 patent before him would have found it obvious to have made the invention set forth in claim 4 of the '934 patent at the time it was made.

Stora bases a major argument on the undisputed fact that size change uniformity is an inherent property of the alloy disclosed in the '518 patent. That argument is unpersuasive when confronted by Stora's failure to establish at trial that that inherency would have been obvious to those skilled in the art when the invention of claim 4 was made. Inherency and obviousness are distinct concepts. *W. L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 1555, 220 USPQ 303, 314 (Fed. Cir. 1983) (citing *In re Sporman*, 363 F.2d 444, 448, 150 USPQ 449, 452 (1966)), *cert. denied*, 105 S. Ct. 172 (1984).

Similarly, Stora's argument that the district court failed to give full import to Crucible's disclaimer of claims 1 and 2 is without merit. First, it is based on conjecture respecting Crucible's reasons for the disclaimer (i.e., that Crucible recognized invalidity of those claims). Second, it ignores the statutory provision that each claim must be separately presumed valid. 35 U.S.C. §282. Third, as previously noted, claim 4 includes all of the limitations of claims 1 and 2 and must be viewed as though it had originally been an independent claim.

### ***Conclusion on Nonobviousness of the Invention Set Forth in Claim 4***

We have considered each of Stora's other arguments touching on the district court's validity conclusion and find them without merit. Because Stora has not discharged its burden on appeal, the portion of the judgment based on the conclusion that the invention set forth in claim 4 of the '934 patent would not have been obvious must be affirmed.

## **(2) Inequitable Conduct**

The district court correctly determined that Stora had waived its inequitable conduct defense to validity at trial. 594 F. Supp. at 1264-65, 226 USPQ at 48; *see also* 226 USPQ at 844. Stora reserved that matter only as possible support for attorney fees in the event it prevailed before the district court. Having waived the assertion at trial, Stora may not resurrect it on appeal. *Cf. Laitram Corp. v. Cambridge Wire Cloth Co.*, 785 F.2d 292, 295, 228 USPQ 935, 937 (Fed. Cir. 1986) (allegation of fraud cannot be raised for the first time in this court). Moreover, in its supplemental opinion, the court expressly found that the Comstock patent was not material and that Stora had therefore failed to carry its burden on inequitable conduct. 226 USPQ at 847. That finding has not been shown to have been clearly erroneous.<sup>8</sup>

## **(3) Increased Damages - Willful Infringement**

In its cross-appeal, Crucible argues that the facts found by the district court mandated an ultimate finding of willful infringement and that such a finding would "[compel] an award of increased damages and attorney fees." The court did not make an express finding on whether Stora's infringement was or was not willful, but limited itself to saying it was unpersuaded that "the evidence including Dr. Hellman's memorandum is sufficient to constitute a basis for treble damages."

The underlying facts are undisputed, and the sole question at this point is whether an ultimate finding of non-willful infringement would be clearly erroneous in light of those underlying facts. If we determine that a finding of non-willfulness would be clearly erroneous, and that a finding of willfulness is dictated by the undisputed underlying facts, we do not thereby engage in *de novo* fact finding, for there are only two possibilities: the infringement here was either willful or it was not. If a finding that it was not would be clearly erroneous, the only alternative is a finding that it

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was. In that circumstance, a remand to the district court for the purely ministerial task of entering a necessary and foreordained finding serves no useful purpose and merely wastes judicial resources.

Before the district court, Crucible relied mainly on a February 5, 1973 internal memorandum of the chief technical expert of Stora, Dr. Hellman. The memorandum was written after a meeting between Crucible and Stora officials, during which Crucible warned Stora that its products would infringe certain allowed claims, before issuance of the '518 patent, and long before Stora commenced its infringement in the United States. The memorandum read:

### **Summary:**

Crucible maintains that additional patent claims, based on an old patent application, have now been approved in the USA and that these patent claims are so worded that we are infringing on them by selling ASP-steel in the USA. We have for now no possibilities for checking this, but must as a matter of course proceed [on the assumption] that it is true. A new search for prior art has been started and the material that has come to hand will be evaluated at the latest by April 15th. If enough solid prior art are found by them, we can bring an action against Crucible and begin to sell ASP-steel in the USA. If the new patent claims, on the other hand, should be judged to be valid, we will be closed out of the American market for the foreseeable future.

In the USA and Canada, the conditions are more difficult than in other countries because of differences in the patent laws. In these other countries, we will sell ASP-steel without waiting for the results of the respective reports.



"Stevens" USPat 3.561.934

All the claims refer to: (As) an *article* of manufacture, a metal body constructed of compacted particles of high speed tool or die steel composition. This protects, in other words, the product and he who imports such products to the USA infringes [on the patent]. We are of the opinion in the meantime, that the patent is *not tenable*. See the special memo on this.

Crucible made it fully clear that they will sue us for patent infringement as soon as they detect that we have begun to sell ASP-steel in the USA. Apparently they have given the same information to our potential customers in the USA. Further, they notified us that at least for the present they do not intent to sell licenses to anybody. If their product is successful, the American authorities can eventually force them to sell licenses to at least one company which is in a position to make a similar product. Their possibility is, in the meantime, unsure and lies a long way in the future. On the other hand, Crucible declared itself willing to discuss a license agreement which would only cover Sweden (!) a suggestion which was not answered.

American courts have divergent attitudes toward patents and if this question goes to court, it is important that we take the initiative so that we can choose the right court.

Up to now our efforts have naturally been concentrated on preparations to get the Stevens-patent declared invalid. The following *measures* are being taken now with the above mentioned new patent claims in mind:

- 1) Search for prior art in the American Patent Office (Curtis, Morris & Safford).
- 2) Search for prior art in the remaining patent literature (patent section, Falun).
- 3) Search for prior art in the technical literature (lab., Soderfors).
- 4) Evaluation of the found material. Shall be finished by April 15, 1973 at the latest.

Here, as in the other patent questions, we will work together with ASEA. In all likelihood, we will also turn to IIB (The International Patent Institute in The Hague) for certain types of research.

If the evaluation gives the right result, we will request a "declaratory judgment action"; that is, we will request that the Stevens-patent be declared invalid. The same measures will be taken against the new Holtz claims as soon as they are made public. As soon as we have filed the former suit, we can begin to sell ASP-steel in the USA but until then we must lie low. This will not involve any noteworthy delay in the introduction of ASP-steel as we must first build up a stock.

During the search for oppositions, we will not come to find directly lethal material, but instead we have to concentrate on finding 2 or at most 3 documents which taken together make it "obvious to the professional" that good powder steel can be made and how. An eventual trial will come to be

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decided on the credibility of the experts' testimony. Our American patent lawyer has guessed at the time and cost for such an action if a compromise were not to be reached: A judgment in the district court will in all likelihood take around two years and the costs will certainly be \$50,000,



perhaps up to \$100,000 dollars, of which the main part will be spent at the beginning of the action and when the trial itself begins. After the appeal to the court of appeals, the judgment will be delayed a further 6-12 months and the costs will rise by 10 to 15 thousand dollars. We must count on having to pay our costs irrespective of the outcome. The damages that we can be assessed if we lose has been guessed to be 5 or possibly up to 10% of the value of the sales.

If the evaluation of the forthcoming oppositions prior art should indicate that the new patent claims in the Holtz application are valid, then the American market is closed to us for the foreseeable future.<sup>2</sup>

The district court found that the memorandum: (1) was based on Stora's assumption that it would be infringing the allowed claims, as to which assumption Dr. Hellman stated "we have no possibilities for checking . . ."; (2) assumed the patents valid and infringed and merely "charted a strategy to check patent validity; contest patent validity; and, in the process, to get [Stora's] products into the United States market;" and (3) "assessed the costs and prospects of litigation upon the further assumption that 'the evaluation give the right result.'" 594 F. Supp. at 1264, 226 USPQ at 48.

The district court also refused to award treble damages because it found that Stora litigated close patent issues saying those issues "presented substantial questions upon which there has been genuine debate and honest disagreement . . . ." 594 F. Supp. at 1264, 226 USPQ at 48. The court noted that awards of treble damages might "thwart good faith efforts to contest patent validity." *Id.* (citing *Yoder Brothers, Inc. v. California-Florida Plant Corp.*, 537 F.2d 1347, 1383, 193 USPQ 264, 296 (5th Cir. 1976), *cert denied*, 429 U.S. 1094 (1977)). The court noted also that when Crucible told Stora of the patents, Stora replied that the patents were invalid in view of Comstock and a 1964 Holtz article. Concluding that Crucible had not overcome Stora's claims of good faith, the district court mistakenly referred to §284 instead of §285 in its refusal to find this to be such an "exceptional case, under 35 U.S.C. §284 (1982) [sic], to justify the award of treble damages." 594 F. Supp. at 1264, 226 USPQ at 48.

[6] That the district court declined to impose increased damages that *may* accompany a finding of willful infringement does not mean that the court found the infringement not willful. *See, e.g., S. C. Johnson & Son, Inc. v. Carter Wallace, Inc.*, 781 F.2d 198, 201, 228 USPQ 367, 369 (Fed. Cir. 1986). Though the parties have proceeded on appeal as though the district court had found Stora's infringement not willful, all the district court decided was that it would not award treble damages. It appears that the court felt that if it found Stora's infringement willful it would have been required to award treble damages. If that be so, it may be said that the court implicitly found Stora's infringement not willful. If that implicit finding was made, it was clearly erroneous.

The district court did not have before it, of course, the guidance on the law of willful patent infringement provided by this court since the time of the trial. *In Underwater Devices*, this court stated:

Where, as here, a potential infringer has actual notice of another's patent rights, he has an affirmative duty to exercise due care to determine whether or not he is infringing. Such an affirmative duty includes, *inter alia*, the duty to seek and obtain competent legal advice from counsel *before* the initiation of any possible infringing activity. [Citations omitted.]

*Id.* at 1389-90, 219 USPQ at 576 (emphasis in original).<sup>10</sup>

Though it is an important consideration, not every failure to seek an opinion of competent counsel will mandate an ultimate finding of willfulness. *King Instrument Corp. v. Otari Corp.*, 767 F.2d 853, 867, 226 USPQ 402, 412 (Fed. Cir. 1985), *cert. denied*, 106 S. Ct. 1197 (1986) (court "should always look at the totality of the circumstances"). Conversely, that an opinion of counsel was obtained does not always and alone dictate a finding that the infringement was not willful. *See, e.g., Kori Corp. v. Wilco Marsh*

*Buggies & Draglines Inc.*, 761 F.2d 649, 656, 225 USPQ 985, 989

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(Fed. Cir.), *cert. denied*, 106 S. Ct. 230 (1985); *Central Soya Co. v. George A. Hormel & Co.*, 723 F.2d 1573, 1576-77, 220 USPQ 490, 492-93 (Fed. Cir. 1983). In the present case, the totality of the circumstances, including the failure to seek advice of counsel, makes any finding of non-willfulness clearly erroneous and compels the only alternative finding, i.e., that Stora's infringement was willful.

On the undisputed facts of record, an ultimate finding that Stora's infringement was not willful would be "incompatible with the applicable findings [the court] clearly articulated" and would thus, as above indicated, be clearly erroneous. *CPG Products Corp. v. Pegasus Luggage, Inc.*, 776 F.2d 1007, 1015, 227 USPQ 497, 502 (Fed. Cir. 1985). Stora has not shown to have been clearly erroneous the underlying findings (e.g., that Stora proceeded with its infringement on the assumption, as stated in the memorandum and found by the district court, that the patents were valid and would be infringed). Those findings fully support the present determination that an ultimate finding of non-willfulness would be clearly erroneous.

Stora has not even asserted that it sought advice of counsel when notified of the allowed claims and Crucible's warning, or at any time before it began this litigation. Stora's silence on the subject, in alleged reliance on the attorney-client privilege, would warrant the conclusion that it either obtained no advice of counsel or did so and was advised that its importation and sale of the accused products would be an infringement of valid U.S. patents.

The internal memorandum of Dr. Hellman, a non-lawyer, clearly shows that Stora intentionally undertook the risk of importing infringing products in the hope that a court would hold the patent invalid, or that Crucible would grant a license to escape litigation. The '518 patent issued almost a full year before Stora began its infringement in the United States. The district court's characterization of the memorandum as "merely [evidencing] an aggressive strategy of contesting patents" may relate to a reason for infringing; it cannot serve as a basis for finding Stora's infringement not willful. That Stora's officials told Crucible, as part of that "strategy", that they thought the patents invalid in view of certain prior art cannot substitute for the advice of competent counsel before the onset of infringement and is contrary to Stora's own internal memorandum. <sup>11</sup>

If infringement be accidental or innocent, increased damages are not awardable for the infringement. If infringement be willful, increased damages "may" be awarded at the discretion of the district court, and the amount of increase may be set in the exercise of that same discretion.

Our indication that Stora's infringement must on this record be found willful does not, therefore, mandate an award of increased damages. The district court has not determined whether, if Stora's infringement were found willful, it would deem increased damages appropriate. Nor has it determined what level of increase, if any, would be appropriate. We therefore express no view on whether the district court, in the exercise of its discretion, should or should not award increased damages as a part of its determination of the damage issues it reserved for later trial. *See CPG Products Corp.*, 776 F.2d at 1015, 227 USPQ at 502.

#### **(4) Attorney Fees**

Having determined that this case was not "exceptional", the district court declined to award treble damages and did not mention either §285 or attorney fees *per se*. Willfulness of infringement relates to the accused infringer's conduct in the marketplace. Because that conduct may be seen as producing an unnecessary and outcome-certain law suit, it may make the case so exceptional as to warrant attorney

fees under §285. Similarly, bad-faith displayed in pretrial and trial stages, by counsel or party, may render the case exceptional under §285.

When a court declines to award attorney fees on the basis of a determination that a case is not exceptional, the fact findings underlying that determination are reviewed under the clearly erroneous standard. When the determination is that a case is exceptional, the election to grant or deny attorney fees is reviewed under the abuse of discretion standard. *Reactive Metals and Alloys Corp. v. ESM, Inc.*, 769 F.2d 1578, 1582-83, 226 USPQ 821, 824 (Fed. Cir. 1985).

We join the district court's concern that awards of increased damages and attorney fees

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not be allowed to thwart efforts to challenge the validity of patents believed in good faith to be invalid. A party who has obtained advice of competent counsel, or otherwise acquired a basis for a *bona fide* belief that a patent is invalid, can be said to serve the patent system in challenging that patent in a law suit conducted fairly, honestly, and in good faith. Such a party should not have increased damages or attorney fees imposed solely because a court subsequently holds that belief unfounded, particularly when the issues may be fairly described as "close".

As above indicated, a court may find that in all the circumstances an infringement was so willful as to justify a determination that a case is exceptional, and a court may thereupon exercise its discretion to award attorney fees to the patentee. *See Standard Oil Co. v. American Cyanamid Co.*, 774 F.2d 448, 455, 227 USPQ 293, 298 (Fed. Cir. 1985); *Milgo Electronic Corp. v. United Business Communications, Inc.*, 623 F.2d 645, 667, 206 USPQ 481, 498 (10th Cir.), *cert. denied*, 449 U.S. 1066, 208 USPQ 376 (1980). Because there is here no express finding on whether Stora's infringement was so willful as to render the case exceptional, we leave the question in the present case to the district court's determination and discretion in conjunction with the reserved damage trial.

Respecting other possible bases for awarding attorney fees, the district court, in discussing treble damages, found that Stora's claims of good faith were not overcome by the evidence, and that the patent validity issue presented substantial questions on which there had been honest disagreement in the PTO and at trial. Those findings would be applicable in considering a request for attorney fees under §285. Because the district court did not expressly award or refuse attorney fees under §285, there is no basis for this court's review of those findings. There having been no denial of attorney fees *per se* under §285, we leave that question also to such further proceedings as the district court may deem appropriate.

#### **(4) The Injunction <sup>12</sup>**

It is undisputed that Kloster was created immediately after conclusion of the trial and long before judgment, and that, before the court's decision, it purchased the facility Stora used to manufacture the products found to infringe. There has been no determination that Stora divested itself of its facilities for producing infringing products for the purpose of evading the effect of any possible injunction. Nor has it been determined that Kloster's effort to evade the injunction was for the purpose of gaining freedom to continue the infringement and force Crucible to a second lawsuit. Such purposes would of course not reflect the highest ethical standards of either the business community or the legal profession.

On September 4, 1984, i.e., fifteen days before the district court issued its opinion, Crucible moved to join Kloster as a party pursuant to Fed.R. Civ. P. 19(a) and 25(c). <sup>13</sup>

The court's opinion issued September 19, 1984, indicated that infringement by Stora and its "successors in interest and assigns" would be enjoined. On October 5, 1984, Kloster appeared at a status conference

and argued that it should not be joined as a party and that "successors in interest and assigns" should be deleted from the proposed injunction. On October 11, 1984, the court issued its injunction enjoining infringement by Stora and its "successors in interest and assigns." The court deemed it unnecessary to decide the joinder question. Kloster moved to modify the injunction by deleting "successors in interest or assigns" or by specifically excluding Kloster. In denying the motion, the court cited *Regal Knitwear Co. v. National Labor Relations Board*, 324 U.S. 9 (1944) as authority for its use of "successors in interest and assigns." 226 USPQ at 846.

[7] Kloster was not a party when the judgment was entered. Nonetheless, because it must be deemed a successor in interest or an assign, it is bound by the injunction and may for that reason appeal the refusal to modify it. See 9 J. Moore, B. Ward & J. Lucas, *Moore's Federal Practice* ¶203.06, at 3-23 (1985); see, e.g., *Zenith Radio Corp. v. Hazeltine Research Inc.*, 395 U.S. 100, 108-112, 161 USPQ 577, 580-82 (1969); see also *United States v. LTV Corp.*, 746 F.2d 51, 53-54 n. 5 (D. C. Cir. 1984). <sup>14</sup>

Kloster attempted to carry water on both shoulders before the district court. It effectively

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asserted it was not bound, when it contested joinder, declined intervention, and sought specific exclusion. It effectively asserted that it was bound, when it sought modification of the injunction, because absent such assertion Kloster would lack standing to contest the injunction's terms. In all events, the district court correctly intended that Kloster be bound by the injunction.

At the status conference, the court said, "the most significant feature of Rule 25(c) is that it does not require that anything be done after an interest has been transferred. The action may be continued by or against the original party and the judgment will be binding on his successor in interest, even though he is not named." <sup>15</sup>(Quoting 7A C. Wright & A. Miller, *Federal Practice and Procedure*, §1958, at 664 (1972); see also, *Minnesota Mining & Manufacturing Co. v. Eco Chem Inc.*, 757 F.2d 1256, 1263-64, 225 USPQ 350, 354-55 (Fed. Cir. 1985) (joinder merely a determination that transferee's presence would facilitate conducting the litigation)).

On appeal, Kloster says that the district court "sought to evade the limitations" of Fed.R. Civ. P. 65(d) <sup>16</sup> when it inserted "successors in interest and assigns." Kloster quotes from *Regal Knitwear Co.*, 324 U.S. at 14: "The terms 'successors and assigns' in an enforcement order of course may not enlarge its scope beyond that defined by the Federal Rules of Civil Procedure." Kloster disregards and distorts the thrust of *Regal Knitwear Co.*, in which the Supreme Court affirmed a *denial* of a motion to strike "successors and assigns" and said that "successors and assigns" may *not* be impermissible under Rule 65(d) and *may* be effective to bind those in privity with the defendant. In *Regal Knitwear Co.*, the Court did not have a successor or assignee before it. In *Golden State Bottling Co. v. National Labor Relations Board*, 414 U.S. 168, 177-80 (1973), it affirmatively held that the successor party there before it was subject to the enforcement order involved, and went on to clarify the absence of conflict between Rule 65(d) and orders binding successors and assigns.

In *Regal Knitwear Co.*, following the sentence quoted by Kloster, the Court wrote:

Successors and assigns may, however, be instrumentalities through which defendant seeks to evade an order or may come within the prescription of persons in active concert or participation with them in violation of an injunction. If they are, by that fact they are brought within the scope of contempt proceedings by the rules of civil procedure.

324 U.S. at 14. The Court stressed that the emphasis "is not merely to succession, but to a relation between the defendant and the successor which might of itself establish liability within the terms of Rule

65." 324 U.S. at 15. The relation here is not disputable. Kloster is the successor-operator of Stora assets used to produce infringing products.

Kloster argues, however, that the district court "avoided giving any consideration to the relationship" between Kloster and Stora, did not "find" it in privity with Stora, did not give it a chance to show it was not in privity, and cannot bind it with Stora solely because it purchased Stora's infringing facility, citing an agreement between Kloster and Stora that Kloster accepted no liability for Stora's infringement. Kloster argues that it cannot be bound because it was not a party, disregarding its resistance to Crucible's motion to join it. Private agreements between Kloster and Stora are irrelevant. Kloster also argues that it should be entitled to litigate the case on the merits before being enjoined. The arguments are spurious.

Courts have repeatedly found privity where, after a suit begins, a nonparty acquires assets of a defendant-infringer. *See, e.g., Brunswick Corp. v. Chrysler Corp.*, 408 F.2d 335, 338, 161 USPQ 65, 67 (7th Cir. 1969); *J.R. Clark Co. v. Jones & Laughlin Steel Corp.*, 288 F.2d 279, 280, 129 USPQ 97, 98-99 (7th Cir.), *cert. denied*, 368 U.S. 828 (1961); *Alb, Inc. v. Noma Lites, Inc.*, 231 F.2d 662, 663, 109 USPQ 26, 27 (2d Cir. 1956). The applicable reasoning was well illustrated in *J.R. Clark Co.*:

If a third party may thus come into the acquisition of rights involved in pending litigation without being bound by the final judgment, and require a suit de novo in order to bind him, he might, pending that suit, alienate that right to another with the same result, and a final decree bearing fruit could never be reached.

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288 F.2d at 280, 129 USPQ at 98 (quoting *G. & C. Merriam Co. v. Saalfeld*, 190 F.2d 927, 932 (6th Cir. 1911)).

Nowhere does Kloster appear to recognize that it can avoid the injunction by simply refraining from infringement. That it desires to continue Stora's infringement appears the only possible basis for its strenuous effort to evade the injunction.

The district court's denial of Kloster's motion to modify the injunction is affirmed.

### **CONCLUSION**

The judgment refusing to hold invalid claim 30 of the '518 patent and claim 4 of the '934 patent, and refusing the inequitable conduct defense, is affirmed. To the extent that the district court's refusal of treble damages rested on an implicit finding that Stora had not willfully infringed, that finding was clearly erroneous, and the request for increased damages and attorney fees is remanded. The denial of Kloster's motion to modify the injunction is affirmed.

***AFFIRMED IN PART AND REMANDED IN PART.***

### **Footnotes**

Footnote 1. Crucible Materials Corp., the successor in interest of Crucible, Inc., was added as a plaintiff in an order dated October 11, 1984.

Footnote 2. In 1977, Uddeholms AB purchased the division of Stora that manufactured ASP steel. Uddeholms and its

American marketing subsidiary, Uddeholm Steel Corp., now called Uddeholm Corp., were joined as defendants and are included here under "Stora".

Footnote 3. Stora admitted infringement of claim 4 of the '934 patent. 594 F.Supp. at 1251, 226 USPQ at 37.

Footnote 4. The district court, apparently through inadvertence, left "successor in interest and assigns" out of its March 12, 1985 injunction order from which Kloster appealed on March 21, 1985 (85-2174). The court included the phrase in its injunction order dated March 25, 1985, from which Kloster also appeals (85-2274). *See* Fed.R. App. P. 4(a)(4).

Footnote 5. The issues of validity under 35 U.S.C. §112 and infringement are not contested on appeal.

Footnote 6. On November 4, 1985, this court dismissed the appeal of Fagersta AB in response to a stipulated motion of all parties.

Footnote 7. Though the '518 patent issued after the '934 patent, it is prior art because the application on which it issued was filed earlier. 35 U.S.C. §102(e); *see Hazeltine Research, Inc. v. Brenner*, 382 U.S. 252, 147 USPQ 429 (1965).

Footnote 8. Stora's allegation that Crucible's failure to cite the Comstock reference to the PTO constituted inequitable conduct was also rejected by the PTO. *See In re Holtz*, 224 USPQ 714 (Bd. App. 1984).

Footnote 9. The quoted paragraphs are reproduced exactly as they appear in the translation set forth in the appendix. [Ed. Note: Printing restraints prevented the exact reproduction of these paragraphs. For their exact reproduction, see the Court's slip opinion.]

Footnote 10. The determination referred to includes, of course, one on validity, there being no liability for infringement of invalid claims.

Footnote 11. We do not here evaluate Stora's strategy. An aggressive strategy may or may not be a factor in a decision to deny or award increased damages. An "aggressive strategy" unsupported by any competent advice of counsel, thorough investigation of validity and infringement, discovery of more pertinent uncited prior art, or similar factors, is the type of activity the reference in the patent law to increased damages seeks to prevent. An alleged infringer who intentionally blinds himself to the facts and law, continues to infringe, and employs the judicial process with no solidly-based expectation of success, can hardly be surprised when his infringement is found to have been willful.

Footnote 12. The injunction reads:

Each of the defendants, their officers, agents, servants, employees, successors in interest and assigns, and any other person, corporation, or organization acting in concert with them is hereby permanently enjoined and restrained during the life of the respective U.S. patents identified above from the making, using or selling of products infringing claim 30 of U.S. Patent No. 3,746,518 or claim 4 of U.S. Patent No. 3,561,934, and from inducing or contributing to the making, using or selling of such products.

Footnote 13. Kloster at no time sought to intervene under Fed.R. Civ. P. 24(a).

Footnote 14. Having neither intervened before the trial court nor argued that Stora is incapable of contesting the merits on appeal, Kloster is without standing to appeal from the judgment on the merits. The brief it filed on the merits has

accordingly been disregarded.

Footnote 15. Thus it was not necessary that the court rule on Crucible's motion to join Kloster.

Footnote 16. Rule 65(d) provides:

Every order granting an injunction . . . is binding only upon the parties to the action, their officers, agents, servants, employees, and attorneys, and upon those persons in active concert or participation with them who receive actual notice of the order by personal service or otherwise.

**- End of Case -**

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**FULL TEXT OF CASES (USPQ2D)**

All Other Cases

In re Spada (CA FC) 15 USPQ2d 1655 (8/10/1990)

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In re Spada (CA FC) 15 USPQ2d 1655

**In re Spada****U.S. Court of Appeals Federal Circuit**  
**15 USPQ2d 1655****Decided August 10, 1990****No. 90-1109****Headnotes****PATENTS****1. Patentability/Validity - Anticipation - Prior art (§ 115.0703)**

Rejection for anticipation requires, as first step in inquiry, that all elements of claimed invention be described in single reference, and such reference must describe applicant's claimed invention sufficiently to have placed person of ordinary skill in possession of it.

**2. Patentability/Validity - Anticipation - Prior art (§ 115.0703)**

Discovery of new property or use of previously known composition, even if unobvious from prior art, cannot impart patentability to claims to known composition.

**3. Patentability/Validity - Anticipation - Prior art (§ 115.0703)**

Board of Patent Appeals and Interferences did not err in finding that virtual identity of monomers and procedures between claimed pressure-sensitive adhesive composition and prior art is sufficient to support prima facie case of unpatentability of polymer latex claims for lack of novelty; applicant has burden, in face of such prima facie case, of showing that his polymer compositions are different from those described by prior art, and such burden is not met by simply including assertedly different properties in claims.



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**FULL TEXT OF CASES (USPQ FIRST SERIES)**

Kloster Speedsteel AB, et al. v. Crucible, Inc., et al., 231 USPQ 160 (CA FC 1986)

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Kloster Speedsteel AB, et al. v. Crucible, Inc., et al., 231 USPQ 160 (CA FC 1986)

**Kloster Speedsteel AB, et al. v. Crucible, Inc., et al.**

**(CA FC)  
231 USPQ 160**

**Order dated August 15, 1986  
Nos. 85-2174, 85-2214, 85-2215, and 85-2274  
U.S. Court of Appeals Federal Circuit**

**Headnotes**

**PATENTS**

**Patentability -- Anticipation -- In general (§ 51.201)**

Court of Appeals for the Federal Circuit grants petitions for rehearing to the extent of making changes in earlier decision (230 USPQ 81).

**Case History and Disposition:**

Page 160

Petitions for rehearing of *Kloster Speedsteel AB v. Crucible, Inc.*, 230 USPQ 81. Petitions granted to extent of making certain changes in opinion.

**Judge:**

Before Markey, Chief Judge, Nichols, Senior Circuit Judge, and Newman, Circuit Judge.

**Opinion Text**

**Opinion By:**

Markey, Chief Judge.

Stora Kopparbergs AB, Uddeholms AB, Stora Kopparbergs Corporation and Uddeholms Steel Corporation (Stora), and Kloster Speedsteel AB and Speedsteel of New Jersey, Inc. (Kloster) have filed Petitions for Rehearing of *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 230 USPQ 81 (Fed. Cir. 1986). The petitions are granted to the extent of making the following changes in the opinion issued by this court on June 11, 1986:

- a) On Page 9, lines 12-13 [ 230 USPQ at 84, right hand column, lines 34-35], delete "Patent drawings are not drawn to scale, and that" and substitute -- That --.
- b) On page 9, line 14 [ 230 USPQ at 84, right hand column, line 36], delete "drawing" and substitute -- photograph -- .
- c) On page 9, line 16 [ 230 USPQ at 84, right hand column, line 40], after "elements," , insert -- i.e., chemical inhomogeneity, inability to achieve full density without sacrificing fine carbide size, --.
- d) On page 33, lines 7-15 [ 230 USPQ at 92, right hand column, lines 4-13], delete "The effort of Stora to evade the effect of any possible injunction by divesting itself of its facilities for producing infringing products, the effort of Kloster to evade the injunction and thus gain freedom to continue the infringement and force Crucible to a second lawsuit, and the continuation of those efforts by appeal to this court, do not reflect the highest ethical standards of either the business community or the legal profession.", and substitute -- There has been no determination that Stora divested itself of its facilities for producing infringing products for the purpose of evading the effect of any possible injunction. Nor has it been determined that Kloster's effort to evade the injunction was for the purpose of gaining freedom to continue the infringement and force Crucible to a second lawsuit. Such purposes would of course not reflect the highest ethical standards of either the business community or the legal profession. --.
- d) On page 37 [ 230 USPQ at 93], delete footnote 17.

IT IS HEREBY ORDERED THAT:

- 1) The petitions for rehearing are granted, and the opinion issued June 11, 1986 is modified, to the extent indicated above.

- End of Case -

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**Case History and Disposition:**

Page 1655

Appeal from the U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences.

Application for patent, serial no. 859,057, filed May 2, 1986 by Lonnie T. Spada and Joseph J. Wilczynski. From decision rejecting claims, applicants appeal. Affirmed.

**Attorneys:**

James H. Laughlin, Jr., of Benoit, Smith & Laughlin, Arlington Va. (Michael H.

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Laird, Brea, Calif., with him on brief), for appellant.

John H. Raubitschek, associate solicitor (Fred E. McKelvey, solicitor, with him on brief), for appellee.

**Judge:**

Before Newman and Mayer, circuit judges, and G.E. Brown, district judge (District of New Jersey, sitting by designation).

**Opinion Text****Opinion By:**

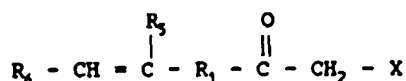
Newman, J.

The decision of the United States Patent and Trademark Office (the PTO) Board of Patent Appeals and Interferences (the Board), rejecting claims 2 through 25 and 27 through 31, all the claims at issue of Spada and Wilczynski (hereinafter Spada) patent application Serial No 859,057, filed May 2, 1986 and entitled "Pressure Sensitive Adhesives and Manufactured Articles", is affirmed.

***The Invention***

The Spada invention is a pressure sensitive adhesive composition comprising a water-based latex containing a normally tacky co-polymer made from specified classes and proportions of monomers and having a glass transition temperature ( $T_g$ ) 1 of  $0^{\circ}\text{C}$  or less. Claim 31 was treated by the parties as representative:

Claim 31. A pressure sensitive adhesive composition comprising a water-base latex comprising a continuous aqueous medium containing dispersed particles of a normally tacky polymer having a  $T_g$  of about  $0^{\circ}\text{C}$ . or less and comprising at least about 60 weight percent olefinically unsaturated carboxylic acid ester monomers and at least about 0.1 weight percent of at least one polymerizable functional monomer of the formula:



in which  $R_1$  is a divalent organic radical of at least 3 atoms in length,  $R_5$  and  $R_6$  are independently selected from hydrogen, hydroxy, halo, thio, amino or monovalent organic radicals, and X is  $-\text{Co}-R_4$  or  $-\text{CN}$  wherein  $R_4$  is hydrogen or a monovalent organic radical.

The Spada disclosure broadly is coextensive with claim 31. While claim 31 requires that the polymers comprise members of two general classes of monomers, Spada's specific examples illustrate polymers in which members of three general classes of monomers are present.

The first class of monomer required by Spada is an olefinically unsaturated carboxylic acid ester that is present in at least about 60 weight percent of the polymer. Representative examples show 96.5 weight percent butyl acrylate (Example 2), and a combination of 48 weight percent butyl acrylate and 48 weight percent 2-ethylhexyl acrylate (Example 11).

Spada's second required class of monomer is a "polymerizable functional monomer" present in "at least about 0.1 weight percent" of the polymer (claim 31). The illustrative examples show 1-2 weight percent acetoacetoxyethyl methacrylate (AAEMA).

Spada's specification states that preferred polymer compositions include at least about 0.1 weight percent of a third class of monomer, an olefinically unsaturated carboxylic acid. Examples are 1.5 weight percent methacrylic acid (Example 2) and 3 weight percent acrylic acid (Example 7).

All of Spada's claims require that the  $T_g$  of the claimed tacky polymers is about  $0^\circ\text{C}$  or less, and that the products are pressure-sensitive adhesives.

The claims were rejected as unpatentable in view of the Smith reference, United States Patent No. 3,554,987, issued January 12, 1971. The Spada disclosure and the Smith reference both show polymers of the same monomers, in overlapping ratios of components. However, the products that Smith and Spada obtain are described as quite different.

### ***The Smith Reference***

Smith describes water-based latexes containing dispersed particles of polymers made from certain classes and proportions of monomers. The polymers are used in binding agents in photographic gels and films.

In most of Smith's examples three monomers are present, as in Spada's examples. The first monomer in Smith's preferred polymers is an olefinically unsaturated carboxylic acid ester, in at least 50 percent by weight of polymer. In Smith's examples this component is illustrated, inter alia, as 75.7 molar percent butyl acrylate (Example 5), and 72.4 weight percent ethyl acrylate (Example 15).

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Smith's second monomer used in preparing his preferred polymers is a polymerizable functional monomer like that described by Spada, present in about 2-20 weight percent of the polymer. Smith's examples include polymers containing 9.4 molar percent of acetoacetoxyethyl acrylate (AAEA) (Example 5), and 3.5 weight percent AAEMA (Example 15). Spada incorporated by reference the entire disclosure of the Smith patent, as showing polymerizable functional monomers suitable and preferred for use in the Spada polymers, and the preparation of these monomers.

The preferred polymers of Smith contain a third monomer, as do Spada's, and most of Smith's examples include acrylic acid. Thus, in Smith's Example 5 the complete polymer composition is 75.7 molar percent butyl acrylate, 9.4 molar percent AAEA, and 14.9 molar percent acrylic acid. In Smith's Example 15 the composition is 72.4 weight percent ethyl acrylate, 3.5 weight percent AAEMA, and 24.1 weight percent acrylic acid.

Smith states that emulsions containing his polymers have improved properties of hardness, resistance to abrasion, good adhesion, and dimensional stability. Smith does not show or suggest that his polymer latexes can form a normally tacky pressure-sensitive adhesive - properties admitted to be different from hardness and abrasion resistance.

### Discussion

The Board affirmed the rejection of Spada's claims under 35 U.S.C. §102/103, this hybrid rejection having apparently been made on the theory that if the claimed subject matter was novel, i.e. not anticipated, in terms of section 102, then it would have been obvious under section 103. 2 The Commissioner on this appeal concentrates on the rejection for anticipation. The Commissioner argues that a *prima facie* case 3 of anticipation is made by the Smith disclosure of polymers that are apparently identical to those of Spada, although the properties described by Smith are different from those that are reported by Spada and included as express limitations in Spada's claims.

[1] Rejection for anticipation or lack of novelty requires, as the first step in the inquiry, that all the elements of the claimed invention be described in a single reference. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir.), *cert. denied*, 110 S.Ct. 154 (1989). Further, the reference must describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it. *Akzo N.V. v. United States Int'l Trade Comm'n*, 808 F.2d 1471, 1479, 1 USPQ2d 1241, 1245 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987); *In re Coker*, 463 F.2d 1344, 1348, 175 USPQ 26, 29 (CCPA 1972).

Spada argues that Smith does not describe Spada's claimed invention, for to find anticipation "all limitations in the claims must be found in the reference since the claims measure the invention." *In re Lange*, 644 F.2d 856, 862, 209 USPQ 288, 293 (CCPA 1981). Spada states that since his compositions are claimed as pressure-sensitive adhesives containing a tacky polymer having a  $T_g$  below 0°C, they can not be anticipated. Spada argues that since the Smith products are hard, abrasion-resistant solids, they are *ipso facto* different.

[2] The discovery of a new property or use of a previously known composition, even when that property and use are unobvious from the prior art, can not impart patentability to claims to the known composition. *4 Titanium Metals Corp. v. Banner*, 778 F.2d 775, 780, 782, 227 USPQ 773, 777-78, (Fed. Cir. 1985); *In re Pearson*, 494 F.2d 1399, 1403, 181 USPQ 641, 644 (CCPA 1974); *In re Lemin*, 326 F.2d 437, 440, 140 USPQ 273, 276 (CCPA 1964). Thus, the initial inquiry is to the novelty of the composition. *Titanium Metals*, 778 F.2d at 780, 227 USPQ at 777.

The Board held that the compositions claimed by Spada "appear to be identical" to those described by Smith. While Spada criticizes the usage of the word "appear", we think that it was reasonable for the PTO to infer that the polymerization by both Smith and Spada of identical monomers, employing

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the same or similar polymerization techniques, would produce polymers having the identical composition. Products of identical chemical composition can not have mutually exclusive properties. *See In re Papesch*, 315 F.2d 381, 391, 137 USPQ 43, 51 (CCPA 1963) (a chemical compound and its properties are inseparable).

[3] While the art and science of polymer chemistry may be distinguished from that of simpler compounds and compositions, in Spada's case we conclude that the Board correctly found that the virtual identity of monomers and procedures sufficed to support a *prima facie* case of unpatentability of Spada's polymer latexes for lack of novelty. See, e.g., *In re Thorpe*, 777 F.2d 695, 697-98, 227 USPQ 964, 966 (Fed. Cir. 1985), wherein the examiner's rejection of product-by-process claims under §102/103, based on similarity of reactants, reaction conditions, and properties, amounted to a *prima facie* case of unpatentability.

In response to the PTO's asserted *prima facie* case the applicant may argue that the inference of lack of novelty was not properly drawn, for example if the PTO did not correctly apply or understand the subject matter of the reference, or if the PTO drew unwarranted conclusions therefrom. However, when the PTO shows sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not. *In re King*, 801 F.2d 1324, 1327, 231 USPQ 136, 138 (Fed. Cir. 1986); *In re Ludtke*, 441 F.2d 660, 664, 169 USPQ 563, 566 (CCPA 1971). Spada

offered no such showing.

The Board suggested that Spada provide some scientific explanation for the asserted differences between the properties of his compositions and those described by Smith. While an inventor is not required to understand how or why an invention works, we think that the PTO was correct, in view of the apparent identity of the compositions, in requiring Spada to distinguish 5 his compositions from those of Smith. Although newly discovered properties can be the basis of claims to *novel* polymers, *E.I. DuPont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1435, 7 USPQ2d 1129, 1133 (Fed. Cir.), *cert. denied*, 109 S.Ct. 542 (1988), Spada did not overcome, with argument or evidence, the apparent chemical identity of his polymers and those of Smith. Spada showed no error, in science or in law, in the Board's holding that the products appeared to be the same and thus that Spada's products were not new.

Spada pointed to his data wherein polymers containing varying amounts of AAEMA showed greatly increased shear strength without significant loss in tack, compared with polymers without the AAEMA. We agree with Spada that this result is not suggested in the Smith reference. However, these data did not relate to the fundamental question of the novelty of Spada's compositions in view of those of Smith. Without novelty, evidence of unobviousness is superfluous.

As we observed *supra*, discovery of an unobvious property and use does not overcome the statutory restraint of section 102 when the claimed composition is known. While Spada's position is that his polymers are not anticipated by the polymers of Smith because their properties are different, Spada was reasonably required to show that his polymer compositions are different from those described by Smith. This burden was not met by simply including the assertedly different properties in the claims. When the claimed compositions are not novel they are not rendered patentable by recitation of properties, whether or not these properties are shown or suggested in the prior art.

The Board's decision rejecting all of the claims is *AFFIRMED*.

### Footnotes

Footnote 1. Glass transition temperature ( $T_g$ ) is defined as the temperature (or temperature range) at which an amorphous polymer changes from a hard, rigid, glassy state to a soft, flexible, rubbery state. S. Rosen, *Fundamental Principles of Polymeric Materials* §8.1 (1982).

Footnote 2. The court has accepted the PTO's practice of basing rejections on sections 102 or 103 in the alternative, provided that the appellant was fully apprised of all the grounds of rejection. *See, e.g., In re Pearson*, 494 F.2d 1399, 1402 & nn. 2-3, 181 USPQ 641, 644 & nn. 2-3 (CCPA 1974).

Footnote 3. The *prima facie* case is a procedural tool which, as used in patent examination (as by courts in general), means not only that the evidence of the prior art would reasonably allow the conclusion the examiner seeks, but also that the prior art compels such a conclusion if the applicant produces no evidence or argument to rebut it. *See Black's Law Dictionary* 1071 (5th Ed. 1979). *See generally In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984) (citing cases showing the evolution of the concept in patent examination of *prima facie* obviousness as a legal inference drawn from uncontradicted evidence). Upon rebuttal, the decision is made on the entirety of the record. *Id.*

Footnote 4. All of Spada's claims are composition claims. The issue is not before us of whether Spada may have discovered a new use of a known composition, which use may be patentable as a process. 35 U.S.C. §101. *See In re Hack*, 245 F.2d 246, 248, 114 USPQ 161, 163 (CCPA 1957).

Footnote 5. It was discussed at oral argument that the Spada invention may not be "particularly point [ed] out and distinctly claim[ed]", in the words of 35 U.S.C. §112, paragraph 2. No rejection had been made under section 112. The Solicitor stated that such a rejection was inappropriate because the claims were "not vague". *But see Burlington Indus. v. Quigg*, 822 F.2d 1581, 1583-84, 3 USPQ2d 1436, 1438 (Fed. Cir. 1987) (whether claims were too broadly written is not a section 103 determination but an issue

of claim imprecision under section 112). *See also In re Muchmore*, 433 F.2d 824, 824-25, 167 USPQ 681, 682 (CCPA 1970) ("there is sometimes a close relationship between indefiniteness under §112, second paragraph and obviousness under §103").

**- End of Case -**

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KCJ Corp. v. Kinetic Concepts Inc. (CA FC) 55 USPQ2d 1835 (8/18/2000)

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KCJ Corp. v. Kinetic Concepts Inc. (CA FC) 55 USPQ2d 1835

**KCJ Corp. v. Kinetic Concepts Inc.****U.S. Court of Appeals Federal Circuit**  
**55 USPQ2d 1835****Decided August 18, 2000****No. 99-1248****Headnotes****PATENTS****1. Patent construction -- Claims -- Broad or narrow (§ 125.1303)**

Indefinite article "a" or "an" in patent parlance carries meaning of "one or more" in open-ended claims containing transitional phrase "comprising," and unless claim is specific as to number of elements, article "a" receives singular interpretation only in rare circumstances when patentee evinces clear intent to so limit article; if claim language or context suggests ambiguity in application of general meaning of article, then court must undertake examination of written description and prosecution history to ascertain whether to limit meaning of "a" or "an."

**2. Patent construction -- Claims -- Defining terms (§ 125.1305)**

Claim phrase "a . . . continuous . . . chamber," in patent for air flotation mattress, covers one or more continuous chambers, since neither asserted claim nor its context suggests exceptional meaning for article "a," and court therefore assumes customary meaning of "one or more," since written description does not restrict invention to single chamber, and since prosecution history does not disclaim multiple chambers.

**3. Patent construction -- Claims -- Broad or narrow (§ 125.1303)**

Claim for air flotation mattress having upper wall portion and secondary wall means constructed to allow substantially uniform air flow over "substantially the entire plan surface area" of those structures

requires spatial as well as temporal uniformity of air flow, since claim language itself demands that air flow through all locations on surfaces of structures, since spatial uniformity of air flow is required in order to enable mattress to achieve stated goal of continuously ventilating all areas of patient's skin adjacent mattress, and since express statements of patentee during prosecution clarify that air flow limitations require both temporal and spatial uniformity.

#### **4. Infringement -- Defenses -- Prosecution history estoppel (§ 120.1105)**

Infringement plaintiff is estopped from asserting that scope of air flotation mattress invention encompasses accused mattress that does not literally meet certain air flow limitations of patent, since record shows that plaintiff narrowed claims during prosecution, by specifying air flow characteristics in question, in order to obtain allowance of pending claims.

#### **Particular patents -- General and Mechanical -- Air mattresses**

4,631,767, Carr, Brosig, and Gottlieb, air flotation mattress, summary judgment of non-infringement affirmed.

#### **Case History and Disposition:**

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Appeal from the U.S. District Court for the District of Kansas, Vratil, J.

Action by KCJ Corp. against Kinetic Concepts Inc. and KCI Therapeutic Services Inc. for patent infringement. Plaintiff appeals from summary judgment of non-infringement. Affirmed.

#### **Attorneys:**

Stacy Y. Daniels, Michael F. Saunders, Teresa A. Woody, and Therese M. Schuele, of Spencer, Fane, Britt & Browne, Kansas City, Mo., for plaintiff-appellant.

Lawrence A. Rouse, Kirk T. May, and David J. Rempel, of Rouse Henderick German May, Kansas City; Marcus Neil Bozeman and Vivian Williams McLeod, of Waring Cox, Memphis, Tenn., for defendants-appellees.

#### **Judge:**

Before Plager, Clevenger, and Rader, circuit judges.

#### **Opinion Text**

#### **Opinion By:**

Rader, J.

On summary judgment, the United States District Court for the District of Kansas ruled that Kinetic Concepts, Inc. and KCI Therapeutic Services, Inc. (collectively, Kinetic) did not infringe KCJ Corporation's (KCJ's) U.S. Patent No. 4,631,767 ('767 patent). See *KCJ Corp. v. Kinetic Concepts*,

*Inc.*, 39 F. Supp. 2d 1286 (D. Kan. 1999) ( *KCJ II* ). Because the district court correctly concluded as a matter of law that the claims at issue cannot cover the accused device, either literally or under the doctrine of equivalents, this court affirms.

# I.

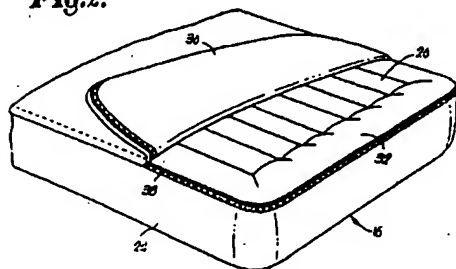
KCJ is the assignee of the '767 patent entitled "Air Flotation Mattress." The patent claims therapeutic mattresses for preventing bedsores. These mattresses, according to the patent, "evenly distribute [] the weight of the body without the necessity of internal spines or other patient-contacting solid supports . . . [and] permit airflow to all areas of the skin to absorb moisture and prevent heat accumulation." '767 patent, col. 2, ll. 31-35. Claim 1, the only independent claim, recites (with bracketed notations added for ease of reference):

1. An air flotation, ventilated mattress apparatus comprising: [(a)] means defining *a lower, continuous, inflatable chamber* having an air-permeable, flexible upper wall portion, [(b)] said upper wall portion being constructed for *substantially uniform airflow therethrough over substantially the entire plan surface area of said upper wall portion*; [(c)] air-permeable secondary wall means above said chamber upper wall portion and operably coupled with said chamber-defining means, [(d)] said secondary wall means being constructed for *substantially uniform passage of air therethrough over substantially the entire plan surface area of said secondary wall means*; [(e)] said secondary wall means and upper wall cooperatively defining therebetween an inflatable compartment above said chamber; and [(f)] means for continuously introducing positive pressure air into said chamber in order to *continuously maintain positive air pressure conditions throughout the entirety of said chamber during the entirety of operation of said mattress apparatus* and to inflate both said chamber and compartment by passage of said air into said chamber and thence through said upper wall portion and thereby maintain positive air pressure conditions in said compartment, and to cause said continuous passage of air through said secondary wall means, [(g)] said mattress apparatus being free of solid internal support structure for supporting a patient, [(h)] said air introduction means, upper wall portion and secondary wall means being cooperatively configured and arranged for continuous passage of sufficient positive pressure airflow through the chamber, upper wall portion, compartment, and secondary wall means for *even, substantially uniform flow of air* from said mattress apparatus so that a person lying atop the secondary wall means is supported by said pressurized air without the presence of weight-supporting structure within said mattress apparatus.

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*Id.* at col. 6, ll. 8-49 (emphasis added). As shown below, Figures 2 and 3 illustrate an embodiment of the invention:

**Fig. 2.**



**Fig. 3.**

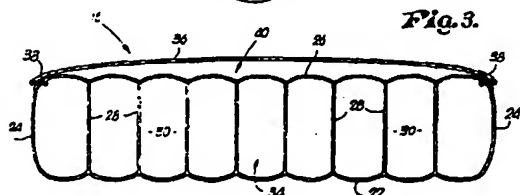


Figure 2 is a perspective view of the mattress with a portion of the upper secondary wall folded back to

reveal the upper wall. Figure 3 is a side sectional view of the mattress 16 with a top wall 26. The bottom, side,

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and top walls 22, 24, and 26 define a lower inflatable chamber 34. *See id.* at col. 4, ll. 20-22. Bottom wall 22 and side walls 24 are substantially impervious to airflow while the top wall 26 is pervious. *See id.* at col. 4, ll. 25-29. "[M]attress 16 is devoid of any internal solid patient supports which could present areas of pressure contact to a patient lying on the mattress." *Id.* at col. 4, ll. 47-50.

During prosecution of the '767 patent application in the U.S. Patent and Trademark Office (PTO), the examiner rejected the claims under 35 U.S.C. Section 103 (1994) as obvious over *Schild et al.*, U.S. Patent No. 4,391,009, in view of *Gammons et al.*, U.S. Patent No. 4,347,633. In response, the patentee amended claim 1 to add, *inter alia*, the "continuous" limitation in clause (a) and limitations that issued as clauses (b) and (d). The examiner then allowed the claims of the '767 patent.

Kinetic makes and sells low-air-loss mattresses. Kinetic's mattresses prevent skin breakdown by reducing the interface pressure between the skin of a bedridden patient and the support device. These accused devices include an inflatable mattress, an air supply unit, and a removable cover sheet. Each inflatable mattress is a one-piece unit consisting of three separately inflatable sections for the head, body, and legs of the patient.

In 1997, KCJ sued Kinetic, alleging infringement of the '767 patent. On December 17, 1998, the district court held a hearing to construe claim 1 of the '767 patent. *See KCJ Corp. v. Kinetic Concepts, Inc.*, 30 F. Supp. 2d 1319 (D. Kan. 1998) (*KCJ I*). Specifically, the district court construed "a lower, continuous, inflatable chamber" limitation of clause (a) as follows: "A person of ordinary skill in the art of air bed engineering would read the phrase 'continuous' to mean without interruption and the word 'a' to mean one." *Id.* at 1325. The court, therefore, determined that "a . . . continuous . . . chamber" means "one non-interrupted inflatable chamber." *Id.*

As to clauses (b) and (d), the district court determined:

"A person of ordinary skill in the art of air bed engineering would read 'substantially uniform airflow' to mean airflow that does not substantially fluctuate over time. When added to the words 'over substantially the entire plan surface,' the claim requires [an] air flow at substantially the same rate at substantially all locations on the surface."

*Id.* at 1326.

After construing the claim, the district court granted Kinetic's motion for summary judgment of noninfringement. *See KCJ II*. Adopting the claim construction of *KCJ I*, the district court determined that the accused devices do not literally infringe claim 1 because "[KCJ] concedes that the limitations of Clause (a) and Clause (b) are not met by any of the accused devices." *Id.* at 1289 n.2. The district court further held as a matter of law that prosecution history estoppel barred a finding of infringement under the doctrine of equivalents. KCJ appeals.

## II.

This court reviews without deference a district court's grant of summary judgment. *See Cortland Line Co. v. Orvis Co.*, 203 F.3d 1351, 1355, 53 USPQ2d 1734, 1746 (Fed. Cir. 2000). Whether the accused device contains each claim element exactly or its equivalent is a question of fact. *See Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1575, 34 USPQ2d 1673, 1676 (Fed. Cir. 1995). In reviewing the district court's summary judgment in favor of Kinetic, this court draws all reasonable inferences from the evidence in favor of the non-movant, KCJ. *See Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986).

A patent infringement analysis involves two steps: claim construction and application of the properly construed claim to the accused product. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976, 34 USPQ2d 1321, 1326 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 [38 USPQ2d 1461] (1996). The first step, claim construction, is a matter of law that this court reviews without deference.

See *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1454, 46 USPQ2d 1169, 1172 (Fed. Cir. 1998) ( *en banc* ). The central focus of the infringement inquiry remains on the claim language, as illuminated by the written description and the prosecution history. See *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1309, 51 USPQ2d 1161, 1169 (Fed. Cir. 1999); *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582, 39 USPQ2d 1573, 1576-77 (Fed. Cir. 1996).

#### A.

The disputed claim construction on appeal involves limitations of clauses (a), (b), and (d). Clause (a) requires "a . . . continuous . . . chamber." At the heart of the dispute over this limitation is the meaning of the article "a." Specifically, does the article limit the number of chambers to only one or does it cover one or more chambers?

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The district court limited clause (a) to only one non-interrupted inflatable chamber. The district court stated that "the concept of multiple chambers is at fundamental odds with the concept of continuity, and discrete multiple chambers cannot be read into the patent without sacrificing the concept of continuity." *KCJI*, 30 F. Supp. 2d at 1325. Thus, the district court "ha[d] little hesitation in concluding that [the claim] means exactly what it says: one continuous chamber." *Id.* Based on that construction, the district court held as a matter of law that clause (a) of claim 1 does not read on Kinetic's accused devices having multiple continuous chambers.

[1] As noted before, the claim language itself governs claim scope. See *Vitronics*, 90 F.3d at 1582. This court has repeatedly emphasized that an indefinite article "a" or "an" in patent parlance carries the meaning of "one or more" in open-ended claims containing the transitional phrase "comprising." See *Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 977, 52 USPQ2d 1109, 1112 (Fed. Cir. 1999); *AbTox, Inc. v. Exitron Corp.*, 122 F.3d 1019, 1023, 43 USPQ2d 1545, 1548 (Fed. Cir. 1997); *North Am. Vaccine, Inc. v. American Cyanamid Co.*, 7 F.3d 1571, 1575-76, 28 USPQ2d 1333, 1336 (Fed. Cir. 1993); see also Robert C. Faber, *Landis on Mechanics of Patent Claim Drafting* 531 (3d ed. 1990). Unless the claim is specific as to the number of elements, the article "a" receives a singular interpretation only in rare circumstances when the patentee evinces a clear intent to so limit the article. See *AbTox*, 122 F.3d at 1023, 43 USPQ2d at 1548. Under this conventional rule, the claim limitation "a," without more, requires at least one.

This court has encountered "a" or "an" in patent claims on several occasions. This court has uniformly applied the general rule for indefinite articles. For instance, in *AbTox*, this court applied the rule and amplified: "The written description supplies additional context for understanding whether the claim language limits the patent scope to a single unitary [element] or extends to encompass a device with multiple [elements]." *Id.* at 1024, 43 USPQ2d at 1548. Moreover, standing alone, a disclosure of a preferred or exemplary embodiment encompassing a singular element does not disclaim a plural embodiment. "[A]lthough the specifications may well indicate that certain embodiments are preferred, particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments." *Electro Med. Sys., S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 1054, 32 USPQ2d 1017, 1021 (Fed. Cir. 1994). Thus, as the rule dictates, when the claim language or context calls for further inquiry, this court consults the written description for a clear intent to limit the invention to a singular embodiment.

Prosecution history also may assist claim interpretation. Indeed, prosecution history "limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance." *Standard Oil Co. v. American Cyanamid Co.*, 774 F.2d 448, 452, 227 USPQ 293, 296 (Fed. Cir. 1985). Accordingly, an applicant may disclaim before the PTO a plural interpretation and thus lose the benefit of the customary meaning of indefinite articles in patent claims. See *Alpex Computer Corp. v. Nintendo Co.*, 102 F.3d 1214, 1220-21, 40

USPO2d 1667, 1671-72 (Fed. Cir. 1996).

Accordingly, when claim language or context suggests an ambiguity in application of the general meaning of an article, this court undertakes an examination of the written description and the prosecution history to ascertain whether to limit the meaning of "a" or "an." For example, in *Insituform Technologies, Inc. v. CAT Contracting, Inc.*, 99 F.3d 1098, 1106, 40 USPQ2d 1602, 1608 (Fed. Cir. 1996), the claim language itself belied a singular meaning. Thus, this court undertook an examination of the entire context of the language and held: "In light of the language found in the claims, specification and file history, we conclude the only correct and indeed the reasonable interpretation of claim 1 limits the scope of that claim to a process using only one vacuum cup which inherently creates a discontinuous vacuum." *Id.* In that case, the court restricted the claim to a singular interpretation because "the claim is specific as to the number of elements (one cup) and adding elements eliminates an inherent feature (discontinuous vacuum) of the claim." *Id.*

[2] In the present case, neither the claim nor its context suggests an exceptional meaning for the article. The intrinsic evidence simply provides no support for departing from the general rule. At the outset, the claim language of clause (a), "a . . . continuous . . . chamber," does not specify the number of elements. Thus, under the general rules of claim construction, this court presumes the customary meaning of "a" - one or more. Furthermore, the written description does not trump that construction. Referring to Figure 3, the written description of the '767 patent discloses that "the bottom, side and top walls 22, 24, and 26 cooperatively

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define a lower inflatable chamber broadly referred to by the numeral 34." '767 patent, col. 4, ll. 20-22. Chamber 34 is operatively coupled to a secondary uppermost wall 36, which provides even airflow. *See id.* at col. 4, ll. 32-45. The written description at no point restricts the invention to only one chamber.

Similarly, the prosecution history of the '767 patent does not disclaim multiple chambers. Neither the amendment itself nor the accompanying remarks limits "a . . . continuous . . . chamber" to only a single chamber. Rather, the remarks focus on the details of the airflow, which passes through the entirety of the chamber during all operations of the mattress. Accordingly, in view of the use of an indefinite article "a" in the claim language without numerical qualifiers and the absence of disclaimers in the written description and the prosecution history, this court holds that "a . . . continuous . . . chamber" covers one or more continuous chambers.

Thus, under the proper claim construction, an accused device having one or more continuous chambers would fall within the scope of clause (a). In the present case, undisputed evidence shows that Kinetic's accused devices have three chambers. Accordingly, this court concludes that clause (a) reads on Kinetic's accused devices. The district court's misreading of the article in this claim, however, is harmless error in light of the meaning of the other clauses.

## B.

The district court construed clause (b) - an "upper wall portion being constructed for substantially uniform airflow therethrough over substantially the entire plan surface area of said upper wall portion" - and clause (d) - "secondary wall means being constructed for substantially uniform passage of air therethrough over substantially the entire plan surface area of said secondary wall means" - to require "air flow at substantially the same rate at substantially all locations on the surface." *KCJI*, 30 F. Supp. 2d at 1326. The district court thus required uniformity of airflow both temporally and spatially. This court thus examines whether clauses (b) and (d) require an airflow uniform both in time and space. During the trial court's proceedings, "[t]he parties agree [d] that when the claim language refers to 'substantially uniform passage of air,' it means airflow which is substantially steady, constant or continuous, as opposed to fluctuating intermittent or alternating over time. . . . [However,] [t]hey disagree [d] about *where* the patent claims the substantially steady air flow will occur." *Id.* at 1325-26.

On appeal, KCJ maintains that the "continuous passage of air" requires uniform airflow only in a temporal sense. Specifically, KCJ asserts: "As used in clauses (b) and (d) of [c]laim 1 of the '767 patent, 'substantially uniform airflow over substantially the entire plan surface area' means that wherever air comes through anywhere over the surface area, it will flow at a substantially uniform or constant rate over time." This court, however, agrees with the district court that claim 1 requires uniformity in space as well as time.

[3] First, the claim language itself requires spatial uniformity. Clause (b) requires "uniform airflow therethrough over *substantially the entire plan surface area* ." '767 patent, col. 6, ll. 12-13 (emphasis added). Similarly, clause (d) requires "uniform passage of air therethrough over *substantially the entire plan surface area* ." *Id.* at col. 6, ll. 19-20 (emphasis added). As the district court aptly noted, "[t]he claim demands that air flow through all locations on the surfaces." *KCJI* , 30 F. Supp. 2d at 1326. To limit uniformity to temporal aspects would render these limitations meaningless.

The written description of the '767 patent reinforces the essential nature of spatial uniformity. The present invention is an "air floatation mattress . . . support [ing] a recumbent patient entirely by means of a throttled flow of pressurized air which also ventilates and cools all adjacent areas of the patient's skin." '767 patent, col. 2, ll. 41-45. To enable the mattress to "continuously ventilat[e] all areas of the skin adjacent the mattress," there must be airflow over the entire plan surface area as the claim recites. *Id.* at col. 3, ll. 4-5. In fact, the written description explains:

[P]ressurized air passes *evenly through virtually the entire plan surface area of the top wall 26* . As a consequence, such air also serves to inflate the upper compartment 40 between top wall 26 and secondary wall 36. Such pressurized air then flows evenly through the suede or leather secondary wall 36; here again, this airflow is *substantially even over substantially the entire plan surface area of the wall 36* .

*Id.* at col. 5, ll. 18-25 (emphasis added). Unless the air mattress has uniform airflow over substantially the entire plan surface area, a patient lying on the secondary wall would not be "supported *entirely by the inflatable compartment* and chamber without the necessity of spines or other internal, non-inflatable solid support structure within

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or forming a part of the mattress apparatus." *Id.* at col. 2, ll. 63-66 (emphasis added).

The record of the administrative proceedings before the PTO supports this interpretation of claim 1. In seeking allowance of the pending claims, the patentee added clauses (b) and (d) to claim 1 and remarked:

In no way does the alternating pad of the *Schild et al.* reference supply positive pressure air *throughout the entirety of the chamber during all operations of the mattress* . . . . Moreover, *Gammons et al.* does not provide means for continuously maintaining positive air pressure conditions *throughout the entirety of the lower chamber during the entirety of the operation* of the mattress apparatus.

J.A. at 138-39 (emphasis added). The express statements of the patentee clarify that the airflow limitations require both a temporal and spatial uniformity. In sum, the prosecution history also supports the district court's interpretation of clauses (b) and (d). To read the claim otherwise would ignore express language of the claim requiring airflow "over *substantially the entire plan surface area* ." '767 patent, col. 6, ll. 14-15.

The district court determined that clauses (b) and (d), when properly construed, do not read on Kinetic's accused mattresses. Literal infringement of a claim occurs when every limitation recited in the claim appears in the accused device, i.e., when "the properly construed claim reads on the accused device exactly." *Amhil Enters., Ltd. v. Wawa, Inc.* , 81 F.3d 1554, 1562, 38 USPQ2d 1471, 1476 (Fed. Cir. 1996). The district court construed clauses (b) and (d) to require uniform airflow in time and over the entire plan surface area. KCJ conceded that under the district court's construction, which this court upholds, "limitations of . . . Clause (b) are not met by any of the accused devices." *KCJ II* , 39 F. Supp. 2d at 1289 n.2. Accordingly, this court affirms the district court's grant of summary judgment of



no literal infringement.

### III.

The district court also properly held on summary judgment that Kinetic's devices do not infringe under the doctrine of equivalents. Infringement under the doctrine of equivalents requires that the accused product contain each limitation of the claim or its equivalent. See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 40, 41 USPQ2d 1865, 1875 (1997). An element in the accused product is equivalent to a claim limitation if the differences between the two are "insubstantial" to one of ordinary skill in the art. See *id.* However, prosecution history estoppel prevents the application of the doctrine of equivalents as a tool to recapture subject matter surrendered during prosecution. See *Litton Sys., Inc. v. Honeywell, Inc.*, 140 F.3d 1449, 1458, 46 USPQ2d 1321, 1327 (Fed. Cir. 1998). Application of the rule precluding use of the doctrine of equivalents to recapture claim scope surrendered during patent acquisition is a question of law subject to review without deference. See *Mark I Mktg. Corp. v. R.R. Donnelley & Sons Co.*, 66 F.3d 285, 291, 36 USPQ2d 1095, 1100 (Fed. Cir. 1995).

[4] This court concludes that the prosecution history of the '767 patent supports the district court's refusal to apply the doctrine of equivalents. The prosecution history reveals that KCJ, in an attempt to obtain allowance of the pending claims over the cited prior art *Schild et al.* and *Gammons et al.*, added clauses (b) and (d) in their entirety. Additionally, KCJ supplemented the claim amendment with the following remark:

[C]laim 1 as now amended specifically and unambiguously recites means for introduction of positive pressure air into the chamber in order to "continuously maintain positive air pressure conditions throughout the entirety of said chamber during the entirety of operation of said mattress apparatus . . . ." In no way does the alternating pad of the *Schild et al.* reference supply *positive pressure air throughout the entirety of the chamber during all operations of the mattress* .

....  
The *Gammons et al.* reference . . . is likewise very different from the structure as claimed in the present claims. . . . [ *G*]ammons *et al.* does not employ a chamber having an upper wall which is constructed for substantially uniform air flow through substantially the entire plan surface of the upper wall. Moreover, *Gammons et al.* does not provide means for continuously maintaining *positive air pressure conditions throughout the entirety of the lower chamber during the entirety of the operation of the mattress apparatus* .

J.A. at 138-39 (emphasis added). Following the claim amendment and the accompanying remarks, the examiner allowed the pending claims.

On appeal, KCJ argues that the amendment and the remarks should impose only a temporal uniformity because spatial uniformity

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would not distinguish the pending claims over the prior art. However, this court concludes that KCJ's statements reflect a clear and unmistakable surrender of mattresses without airflow "throughout the entirety of the lower chamber." *Id.* The added claim language as well as the accompanying remarks show that KCJ narrowed the claims to require spatial and temporal uniformity to obtain allowance of the pending claims. In fact, KCJ admits in its appeal brief that "KCJ added specific language, including the clauses at issue, for the express purpose of distinguishing the '767 patent from the cited prior art." Accordingly, this court holds that the prosecution history precludes KCJ from recapturing subject matter surrendered during prosecution through the doctrine of equivalents. As mentioned above, KCJ conceded that Kinetic's devices do not satisfy the spatial uniformity limitation. KCJ may not now employ the doctrine of equivalents to extend clauses (b) and (d) to encompass Kinetic's devices, which are not within the legal boundaries of claim 1. This court therefore affirms the district court's grant of summary judgment of noninfringement under the doctrine of equivalents.



## CONCLUSION

Because Kinetic's accused mattresses do not infringe claim 1 of the '767 patent, either literally or equivalently, this court affirms the district court's grant of summary judgment of noninfringement.

## COSTS

Each party shall bear its own costs.

**AFFIRMED .**

**- End of Case -**

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c) flags hoisted together as a signal: —SYN. see lift.

**hoi-ty-toi-ty.** (hoi'ti-toi'ti), *adj.* [redupl. of obs. *hoit*, to indulge in noisy mirth]. 1. giddy; flighty; capricious.

**2. haughty; arrogant; condescending; patronizing.** 3. petulant; fussy; huffy. *n.* hoity-toity behavior.

*interj.* an exclamation of surprise and somewhat contemptuous or derisive disapproval. Also **highly-tighty, ho-key-po-key** (hō'ki-pō'ki), *n.* [prob. altered < *hocus-pocus*]. 1. *hocus-pocus*; trickery. 2. cheap ice cream sold by street vendors. Also spelled **hokypoky**.

**Hok-kai-do** (hōk'ki-dō), *n.* one of the islands forming Japan, north of Honshu: area, 34,084 sq. mi.; pop., 3,853,000 (est. 1947); capital, Sapporo: former name, *Yezo*.

**Ho-ko Gun-to** (hō'kō goon'tō), Pescadores Islands.

**ho-kum** (hō'kəm), *n.* [altered < *hocus*]. [Slang]. 1. crudely comic or mawkishly sentimental elements in a play, story, etc., used to gain an immediate emotional response. 2. nonsense; humbug; claptrap; bunk.

**Ho-ku-sai, Ka-tsu-shi-ka** (kā'tsoo-shē'kā hō'koo-si'), 1760-1849, Japanese engraver and painter.

**Hol-bein, Hans** (hāns hōl'bin; Eng. hōl'bin), 1. 1465?-1524; German painter: called the *Elder*. 2. 1497?-1543; his son; German painter: called the *Younger*.

**HOLC, H.O.L.C., Home Owners' Loan Corporation.**

**hold.** (hōld), *v. t.* [HOLD (held)], **HOLDING**; *archaic* pp. **HOLDEN** (hōld'n), [ME. *holden*; Anglian AS. *haldan* (W. Sax. *healdan*); akin to G. *halten*; Goth. *haldan*, to tend (sheep); IE. base \**gel-*, to drive, as also; in L. *celer*, swift. (see **CELEBRITY**); prob. sense development: drive (cattle, etc.)—tend (cattle, etc.)—possess (cattle, etc.)]. 1. to take and keep with the hands, arms, or other means; grasp; clutch; seize. 2. to keep from going away; not let escape: as, *hold* the prisoner, will they *hold* the train till we get there? 3. to keep in a certain place or position; or in a specified condition: as, *hold* your head on one side. 4. to restrain or control as by keeping in a certain place; specifically, a) to keep from falling; bear the weight of; support; sustain: as, this pillar *holds* the platform. b) to keep from acting; keep back: as, *hold* your tongue. c) to keep from advancing or attacking. d) to keep from getting an advantage. e) to get and keep control of; keep from relaxing: as, the speaker *held* their attention. f) to keep (a letter, etc.) for delivery at a later time. g) to keep under obligation; bind: as, *hold* him to his word. 5. to have and keep as one's own; be in possession of; own; occupy: as, he *holds* the office of mayor. 6. to keep against an enemy; guard; defend: as, *hold* the fort. 7. to have or conduct together; carry on (a meeting, conversation, etc.); perform (a function, service, etc.): as, the college will *hold* classes today. 8. to call together or preside over: as, the judge will *hold* court. 9. to have or keep within itself; contain; have room or space for: as, this bottle *holds* a quart. 10. to have or keep in the mind. 11. to have an opinion or belief about; regard; consider: as, I *hold* your statement to be untrue. 12. in law, a) to decide; adjudge; decree. b) to bind by contract. c) to possess by legal title: as, who *holds* the mortgage? 13. in music, to go on sounding (a tone). *v. i.* 1. to go on being firm, loyal, etc.: as, *hold* to your resolution. 2. to remain unbroken or unyielding; not give way: as, the rope *held*. 3. to have right or title (usually with *from* or *of*). 4. to be in effect or in force; be true or valid: as, this principle *holds* in any government. 5. to keep up; continue: as, the wind *held* from the north. 6. to go no further; stop oneself; halt: usually in the imperative. *n.* 1. the act or manner of grasping or seizing; grip. 2. a thing to hold or hold on by. 3. a thing for holding or containing something else. 4. a controlling or dominating force; restraining authority; strong influence: as, his wife has a firm *hold* over him. 5. a means of confinement; prison. 6. [Archaic], a stronghold. 7. [Obs.], the act or fact of guarding, possessing, keeping in custody, etc. 8. in music, a symbol for a pause. 9. in *wrestling*, a way of holding or seizing an opponent: as, a scissors *hold*. —SYN. see **contain**, **have**.

**catch hold of, to take; seize; grasp.**

**get hold of, 1. to take; seize; grasp. 2. to acquire.**

**hold back, 1. to restrain. 2. to refrain. 3. to retain.**

**hold down, 1. to keep down or under control; restrain.**

**2. [Colloq.], to have and keep (a job).**

**hold forth, [after Phil. 2:16], 1. to speak at some length; preach; lecture. 2. to offer; propose.**

**hold in, 1. to keep in or back. 2. to control oneself or one's impulses.**

**hold off, 1. to keep away at a distance. 2. to keep from attacking or doing something.**

**hold on, 1. to retain one's hold. 2. to continue; persist. 3. [Colloq.], stop! wait!**

**hold one's own, to keep up; not fall behind.**

**hold out, 1. to last; endure; continue. 2. to continue resistance; stand firm; not yield. 3. to offer. 4. [Slang], to fail or refuse to give (what is to be given).**

**hold over, 1. to postpone consideration of or action on. 2. to stay for an additional period or term. 3. to keep as a threat or advantage over.**

**hold up**, 1. to keep from falling; prop up. 2. to show; exhibit. 3. to last; endure; continue. 4. to stop; delay; impede. 5. to stop forcibly and rob; hence, 6. [Colloq.], to overcharge.

**hold with**, 1. to agree with. 2. to approve of. 3. to side with.

**lay (or take) hold of**, 1. to take; seize; grasp. 2. to get control or possession of.

**hold (hōld)**, *n.* [altered (after *hold*, *v.*) < *hole* or < MD. *hol*, a hole, cave, ship's hold], the interior of a ship below decks, especially below the lower deck, in which the cargo is carried.

**hold-all (hōld'ōl')**, *n.* a large traveling case for carrying clothes, equipment, etc.

**hold-back (hōld'bak')**, *n.* 1. a thing that holds back; curb; check; hindrance. 2. a strap or iron attached to the shaft of a wagon, carriage, etc. and to the harness to enable a horse to stop or back the vehicle.

**hold-en (hōl'd'n)**, archaic past participle of *hold*.

**hold-er (hōl'dēr)**, *n.* [ME. *holdere*], a person or thing that holds; specifically, *a*) a person who holds, and legally entitled to payment of, a bill, note, or check; *b*) a tenant. *c*) a possessor. *d*) a device for holding something, as a penholder. *e*) a heavy cloth to protect the hands when lifting hot dishes.

**hold-fast (hōld'fast', hōld'fäst')**, *n.* 1. a holding fast. 2. a device that holds something else in place; hook, nail, clamp, etc.

**holding (hōld'ing)**, *n.* [ME. *holdinge*; see *HOLD*], 1. land, especially a farm, rented from another. 2. usually *pl.* property owned, especially stocks and bonds. 3. in certain sports, the act of illegally hindering an opponent, as from using his arms or hands.

**holding company**, a corporation organized to hold bonds or stocks of other corporations, which it usually controls.

**hold-out (hōld'out')**, *n.* [Colloq.], in *baseball*, *football*, etc., a professional player who has not signed a contract at the regular time because he is insisting upon better terms.

**hold-over (hōld'ō'vēr)**, *n.* [Colloq.], a person or thing staying on from a previous period; specifically, a person, as an officeholder or entertainer, who is held over from one term of office, engagement, etc. to another.

**hold-up (hōld'up')**, *n.* 1. a stoppage; delay or hindrance. 2. the act of stopping forcibly and robbing; hence, 3. [Colloq.], an overcharging.

**hole (hōl)**, *n.* [ME.; AS. *hol*, orig. neut. of *hollan*, to hollow; hence akin to G. *hohl*, hollow; IE. base \**gʰol-*, hollow, hollowed thing, as also in L. *caul*, stalk, cabbage (cf. *COLE*, CAULIFLOWER)], 1. a hole or hollowed-out place; cavity; specifically, of an excavation; pit; as, he dug a *hole* in the ground. 2. a small bay or inlet; cove; often in place names, as, a pool or deep, relatively wide place in a stream. 3. swimming *hole*. *d*) an animal's burrow or lair. 4. hence, 2. a small, dingy, squalid place; any badly lighted room, house, etc. 3. a prison. 4. *a*) an opening in or through anything; break; as, a *hole* in the wall. *b*) a tear or rent, as in a garment. 5. a flaw; fault; blemish; defect; as, we found a *hole* in his argument. 6. [Colloq.], an embarrassing situation; predicament. 7. in *golf*, *a*) a small, round, hollow place into which the ball is to be hit. *b*) a tee, fairway, greens, etc. leading to this; as, 15th *hole* of golf. *v.t.* [HOLD (hōld), HOLDING], 1. to make a hole or holes in. 2. to put, hit, or drive into. 3. to create by making a hole; as, they *holed* a tunnel through the mountain.

**burn a hole in one's pocket**, to make one spend it; said of money.

**hole high**, in *golf*, as far from the tee as the ball can go, even with the hole but not in it.

**hole in one**, in *golf*, the act of getting the ball into the hole with one drive from the tee.

**hole out**, in *golf*, to hit the ball into a hole.

**hole up**, 1. to hibernate, usually in a hole. 2. to stay in one's hole.

**in the hole**, [Colloq.], financially embarrassed; in the hind: often with a specific sum indicated, as, \$100 dollars in the hole this month.

**make a hole in**, to consume a sizable amount of; to pick holes in, to pick out errors or flaws in.

**SYN.**—*hole* is the general word for an open space or cavity, and may suggest a depression in a surface or an opening in a surface to surface (a *hole* in the ground, a *hole* in the wall). *hollow* basically suggests an empty space within a solid body, whether or not it extends to the surface, but it may also be applied to a depressed place in a surface (a wooden *hollow* in a table). *Cave* is the Latin-derived equivalent of *hollow*, though it is applied in formal and scientific usage (the *cave* of an excavation is a hollow made in or through ground, as in the excavations at Pompeii).

**hole-y (hōl'i)**, *adj.* [ME.], having a hole or holes. *hol-i-but (hol'ə-bət)*, *n.* [*pl.* HOLIBUT, HOLIBUTS], see *PLURAL*, II, D, 2], a halibut.

**hol-i-day (hol'ə-dā')**, *n.* [< ME. *holidei*, with *h* from the first vowel; AS. *hālīgdæg*, lit., holy day], 1. a day

festival; hol-  
freedom from  
recreation;  
period of lei-  
aside by law,  
usually in ce-  
to a holiday.  
**hol-i-ly** (hō'-  
in a holy m-  
**hol-li-ness** (h-  
1. the quali-  
of the Pope:  
**Hol-lins-head**,  
1580; Englis-  
**hol-la** (hō'-  
**ho, ho + lā,**  
**Hol-land** (hō'  
**holl,** wood;  
**hol, hole, h-**  
**hol-land** (hō'  
a linen or  
children's c-  
**hol-lan-dais-**  
**land** when t-  
**hol-lan-dais-**  
of holland-  
vegetables,  
**Hol-lander**-  
Holland.  
**Hol-lan-di-a-**  
in the form  
Iran); now  
**Hol-lands** (h-  
made in Ho-  
geneva.  
**hol-ler** (hōl-  
shout; yell;  
widely used  
**hol-lo** (hōl-  
-lōz'), [var-  
pecially tol-  
or to urge o-  
or surprise;  
in to shout  
tention of  
shouting or  
as in greet-  
**hol-loa, hill-**  
**hol-lo-a** (hōl-  
**hol-low** (hōl-  
the having  
having a c-  
below the  
snow), con-  
chicks, 4  
meaningful  
muffled, as  
ev-, in a b-  
place, cav-  
someone he  
beat all  
below of  
**hol-low-ey-**  
dark area;  
**hol-ty** (hōl-  
AS -toe)  
need to be  
point of  
sharp point  
of the leaf  
**hol-ty** (hōl-  
book or AS  
blanket to  
a hairy bear  
and the old  
**Hol-ty** (hōl-  
Angels, 9  
American  
American  
**Hol-wood** (h-  
on a box  
to the city  
**holm** (hōlm;  
Atlantic O-  
in SWA-  
man-made  
ABrang-  
**holm** (hōlm;  
from the  
**hol-man** (h-  
English;  
Holmes,  
American  
Am-  
American  
supreme  
Holmes &